

**REPORT TO THE DIRECTOR  
CALIFORNIA DEPARTMENT OF FISH AND GAME**

**FROM  
THE COHO SALMON STATEWIDE RECOVERY TEAM**

**December, 2003**

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**1.0 INTRODUCTION**

**1.1 Background of the Recovery Planning Process**

In August, 2002 the California Fish and Game Commission (Commission) issued a finding that coho salmon warranted listing as a threatened species in the Southern Oregon/Northern California Coast ESU range and as an endangered species in the Central California Coast ESU range. The Commission directed the Department of Fish and Game to develop a Recovery Strategy to recover coho salmon.

The Salmon and Steelhead Recovery Coalition (SSRC) petitioned the Commission for the listing for coho salmon under the California Endangered Species Act. The petition resulted from the Coalition's long term concern for and work on behalf of the species. Members of the Coalition filing the petition for listing include:

- Cal Trout,
- Smith River Alliance (SRA),
- The Sierra Club,
- Salmonid Restoration Federation (SRF),
- Environmental Protection Information Center (EPIC),
- Northcoast Environmental Center (NEC),
- Trout Unlimited – California Council,
- Northern California Association of River Guides,
- Coast Action Group (CAG), and
- Pacific Coast Federation of Fishermen's Associations (PCFFA).

**1.2 Charge to the Coho Recovery Team from the Director**

The Director of the Department of Fish and Game (Director) initiated a multi-stakeholder Coho Recovery Team (CRT) to aid the Department in the development of its recovery strategy. The Director requested that the team consider the full range of measures, including voluntary as well as regulatory, to accomplish the goal. He also asked the team to consider recovery on a watershed by watershed basis.

### **1.3 Composition of the Coho Recovery Team/Membership**

The following were selected by the Director as members of the CRT:

Craig Bell, The Sierra Club and Richard Geinger, alternate  
Joe Blum, National Oceanic and Atmospheric Administration, Protected  
Resources Division and Charlotte Ambrose, alternate  
Walter Duffy, U.S. Geological Survey—California Cooperative Fisheries Unit,  
Humboldt State University, science representative  
Lawrence Dwight, California Cattlemen’s Association and William Thomas,  
alternate  
Dan Gale, Senior fisheries biologist, Yurok Tribe and Dave Hillemeier, alternate  
Pam Giacomini, Director of Natural Resources and Commodities, California  
Farm Bureau Federation  
Steve Herrera, Chief, Environmental Review Unit, California State Water  
Resources Control Board  
Leslie Friedman Johnson, The Nature Conservancy and Wendy Millet, alternate  
(active member is Wendy Millet)  
George Kautsky, Fisheries biologist, Hoopa Valley Tribe and Mike Orcutt,  
alternate  
Kallie Kull, Director, FishNet 4 C (counties of Santa Cruz, Monterey, San Mateo,  
Marin, Sonoma, and Mendocino-Russian River basin) and Liz Lewis, alternate  
Mark Lancaster, Five Counties Salmonid Conservation Plan Advisory Committee  
(counties of Del Norte, Siskiyou, Trinity, Humboldt, and Mendocino)  
Dean Lucke, Assistant Deputy Director, Forest Practices, California Department  
of Forestry and Fire Protection and Duane Shintaku, alternate  
Deborah McKee, Senior Environmental Planner, California Department of  
Transportation and Chris Collison, alternate  
Larry Moss, Smith River Alliance and Bill Yeates, alternate  
Gail Newton, CRT Team Leader and Project Director, California Department of  
Fish and Game, Native Anadromous Fish and Watershed Branch and Kevin  
Shaffer, alternate  
Peter Parker, non-industrial timber owner and Dan Weldon, alternate  
Randy Poole, General Manager and Chief Engineer, Sonoma County Water  
Agency and Jean Baldrige, alternate  
Mark Rentz, Vice President, Environmental and Legal Affairs, California Forestry  
Association  
Jimmy Smith, commercial fishing and Vivian Helliwell, alternate representing  
Pacific Coast Federation of Fishermen’s Associations (PCFFA) (active member is  
Vivian Helliwell)  
Stephanie Tom Coupe, Office of General Counsel, California Department of Fish  
and Game  
Tom Weseloh, California Trout and Stan Griffin, alternate

## **2.0 ORGANIZATION OF THE RECOVERY TEAM**

The CRT's work was facilitated by Sandra Rennie, who was asked by the Director to assist the CRT in its work.

### **2.1 Mission Statement**

The mission statement adopted by the CRT is:

*Within our vision of restoring populations of coho salmon, including healthy, wild, naturally reproducing populations throughout its range, and restoring tribal, commercial, and recreational fisheries in California, it is our mission to aid the Department in the development of a recovery strategy for coho salmon, with the goal that the species will no longer warrant listing.*

### **2.2 Ground Rules for Operation**

The CRT adopted a set of ground rules to govern its activities. They are attached as Appendix A. Most importantly, the ground rules acknowledge and respect that the many stakeholders represented bring to the CRT a wide range of skills, knowledge, and interests, providing for the fullest expression of these attributes, and while encouraging consensus, also provide for expression of alternate approaches to recovering the species where consensus is not possible.

### **2.3 Meeting Topics and Schedule**

The CRT met in plenary sessions December 2002 through September 2003 an average of three days per month. During this time, meetings were devoted to discussing and developing recommendations for each watershed within the historic range of coho salmon in California. Portions of two meetings were spent learning about interests and concerns of stakeholder groups. Portions of three meetings were devoted to developing a method for prioritizing watersheds according to their potential role in recovery of coho salmon. Portions of two meetings were devoted to developing recovery criteria. Recommendations with range wide significance were developed simultaneously with watershed-specific recommendations and two meetings were devoted entirely to statewide issues. During September, the CRT reviewed its work and adopted additional recommendations for both range wide issues and some watersheds. The CRT met twice with the Shasta and Scott Recovery Team to provide feed back on SSRT's preliminary recommendations and to discuss recommendations adopted by the CRT for the Scott and Shasta Valleys.

Between plenary sessions, working groups composed of CRT members and, in some cases DFG staff members, devoted many hours to research, conference calls, and meetings to develop sets of proposed recommendations on specific topics for consideration by the whole CRT.

## **2.4 Approach to Recovery Planning**

The CRT was provided numerous background documents by DFG staff, including watershed summaries for each watershed that identified current physical conditions, presence of coho salmon, and problems for coho salmon. Many additional documents were developed and shared by CRT members on topics including coho presence in each watershed, historical, current, and potential coho salmon habitat, scientific information concerning the species, current and projected land uses, and other information pertinent to the recovery of coho. A web site was created to facilitate information sharing—[www.cohorecovery.org](http://www.cohorecovery.org). although all documents shared are not available on the web site.

Meetings were structured to develop a common understanding of problems and opportunities for coho salmon and issues of importance to stakeholder groups. Typically, a topic was introduced by DFG staff through written materials. DFG and other members of the CRT provided proposed recommendations in writing for the CRT as a whole to consider. Discussion first ensued among those most knowledgeable about the particular issue or watershed. Then others joined the discussion with questions and ideas. Draft written recommendations were the work product of all discussions. Meeting notes captured issues discussed, including a partial identification of data gaps and newly available data.

Members of the CRT, including the DFG members, frequently brought experts to meetings. These experts' knowledge enriched the understanding of the issue or watershed and enabled the CRT to significantly refine its recommendations.

Much work was done outside of meetings. Working groups were formed to allow the CRT to move faster and farther by doing preliminary work and developing proposed recommendations for all to consider. These working groups were composed of team members who volunteered for each working group and were broadly representative of the whole team. Working groups also benefited from additional expertise of Department staff and others invited by CRT members to participate. See Appendix B for identification of those outside the Department who assisted one or more CRT member.

## **2.5 Developing Recommendations**

The CRT developed, reviewed, edited and then voted on the language of each recommendation. At its meeting of July 16-17, 2003, the CRT again reviewed each recommendation developed to that date, modified language as necessary, and voted on the final form of each recommendation. All members of the CRT were present at the July 16-17 meeting.

After being granted its request for additional time, the CRT resumed meeting in September. On September 10-11 and September 22-23 the CRT considered topics not previously considered and voted upon additional recommendations as needed to address each topic and watershed. Upon the completion of its work in September, the CRT had considered previously introduced but not voted upon as well as new recommendations any member of the CRT had placed on the September agenda.

All members of the CRT or their alternate were present at the September meetings except two, who (with permission of the CRT) had given their proxies to CRT members of their choice. The two DFG members of the CRT did not cast votes on the final recommendations.

### **3.0 RECOMMENDATIONS FOR COHO RECOVERY**

#### **3.1 Introduction**

The CRT recognizes the magnitude of the task before Californians: we must continue to improve coho habitat in the short term (such as placement of large woody debris to increase stream complexity until natural LWD recruitment can be restored, rocking and winterizing roads to reduce sediment transport to streams, retaining a streamside shade canopy where possible to moderate temperature) and improve conditions in the long term through systematic habitat restoration and changes in land use practices throughout the geographic range of coho salmon.

The CRT notes that much that will benefit coho salmon is happening already. During every meeting, DFG and members noted cooperative and voluntary actions taken by landowners, non-profit organizations, and others to improve practices and restore habitat. A partial list of such groups and activities is attached as Appendix C to illustrate cooperation and action. In addition, the CRT recognized that the Board of Forestry recently amended the California Forest Practice Rules, including the Threatened and Impaired Watershed Rules, to provide additional protection and enhancement to coho habitat.

The CRT wishes to underscore particularly the importance of three issues: dedication of adequate DFG and other public agency staff and financial resources to implement the plan over the long term; the need for DFG to actively and consistently enforce the laws available to it to protect coho salmon; and the absolute necessity for cooperation among governmental agencies, landowners, watershed and restoration groups, and the private sector in order to get the job done. A majority of land ownership within the range of coho salmon is private. This is particularly true in the CCC ESU. Many private landowners are learning what is needed and taking voluntary action within their means. These actions should be recognized and supported because the pace and success of coho salmon recovery will be best accomplished with both government and voluntary private action.

Recommendations are contained within three sections. The CRT's recommendation on end-point criteria for de-listing coho and the restoration of a fishable resource and the CRT's recommendation on prioritizing watersheds<sup>1</sup> for recovery and restoration efforts follow this introductory material within section 3.0. The recommendations within section 3.0 were adopted by consensus. Section 4.0 contains recommendations with rangewide significance within the historic coho habitat range. Section 5.0 contains recommendations pertinent to specific watersheds within the historic range. Consensus recommendations within each sub-section of 4.0 and 5.0 are grouped together and shown first, followed by non-consensus recommendations.

Within each category, recommendations adopted by consensus<sup>2</sup> are listed first, followed by recommendations recommended by a majority of voting CRT members. Some recommendations that did not receive full consensus have alternate proposals.<sup>3</sup> The ground rules provided an opportunity for any CRT member to include an explanation of a vote; some recommendations include explanations.

In some HUs, the CRT did not develop recommendations for some areas (i.e., certain HSAs) that it felt has low or no potential for coho recovery. Members of the CRT understand and have vigorously encouraged the Department to supplement information on watershed status and coho presence as new data become available due to actions taken during Strategy implementation and as coho return to their breeding grounds.

### **3.2 Status of the CRT Planning Process**

The CRT considered each range wide issue and each watershed. In some cases, information on which to base recommendations was incomplete. The CRT relied upon the best available information from the Department, the CRT member organizations and scientific literature.

The planning time line did not allow close consideration of an implementation strategy, particularly in using the economic analysis to refine action priorities because the economic analysis could not be completed until after the CFRT developed its final recommendations; this occurred at the last CRT meeting in September.

### **3.3 Recovery Criteria**

The CRT has developed and adopted the following framework for delisting criteria and restoration of fisheries criteria. The CRT understands that numerics for each criterion are to be developed jointly by DFG and NOAA Fisheries.

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<sup>1</sup> To provide consistency with existing resource databases, recovery recommendations were compiled according to the geographic divisions of the Calwater 2.2a system. Recommendations are organized by two geographic levels, the *hydrologic unit (HU)*, which generally corresponds to major watersheds or sub-regions within the range of coho, and within each HU by *hydrologic subarea (HSA)*, which generally corresponds to major tributary watersheds. Prioritizations are organized by HSA.

<sup>2</sup> Consensus is defined as no "no" votes or abstentions.

<sup>3</sup> There was general agreement on the underlying problems but may have been differences on how to address those problems.

## The Framework for Coho Salmon Recovery Criteria

The primary goal of the recovery strategy is to recover coho salmon to the point where the listing of coho salmon under CESA is no longer warranted. An additional goal is the restoration of sustainable tribal, recreational, and commercial coho salmon fisheries in California (see Section VI below). Delisting for purposes of CESA would occur when incidental take from recreational fishing and by-catch from commercial fishing could be sustained without risking probability of extinction, although by-catch will still be subject to regulation by the Pacific Fisheries Management Council and NOAA Fisheries.

### *FRAMEWORK FOR DELISTING CRITERIA*

The recovery plan must meet specific conditions that are evaluated by the Fish and Game Commission (§2111.a-d.). These conditions are:

- a) The strategy will conserve, protect, restore and enhance coho salmon (as a species);
- b) Both the strategy and the implementation schedule are capable of being carried out in a scientifically, technologically, and economically reasonable manner;
- c) The strategy is supported by the best available scientific data; and
- d) The strategy represents an equitable apportionment of both public and private and regulatory and nonregulatory obligations.

The approach to achieving the primary goal is to improve coho salmon populations and habitat so the species is neither threatened or endangered with extinction throughout or in a significant portion of its range. Hence, the regulations or other protections for coho salmon listed under CESA would no longer be necessary. Achieving this will take a combination of five principle delisting requirements (delisting requirements), addressing coho salmon populations and coho salmon habitat. These principles, and recovery criteria (criteria) for each, are outlined below in a delisting framework.

Each criterion, and the process for developing the objective, measurable components, is listed below. For many of these criteria, the timeline for development is the same as the National Marine Fisheries Service's two technical review teams (TRT) work on the two coho salmon ESUs in California. The Department is participating in both TRTs, and when the TRTs release their public documents, the Department will add the specifics of each criterion to an update of its coho salmon recovery plan and will allow the framework to be adopted as formal delisting criteria. Integrating Department and NMFS timelines for criteria development will not delay the determination of delisting because a determination that delisting or downlisting is warranted will require a sustained trend over multiple coho generations.

The five delisting requirements are linked together by the overall ecological goals they attain through their integration. Those goals are to maximize genetic diversity and persistence through environmental variation and stochastic events and across the range of coho salmon in California. The delisting requirements apply to naturally reproducing stocks of coho salmon, and their fulfillment at the ESU will signal the ability to down- or delist coho salmon under CESA.

*Downlisting/ delisting will occur when all of the requirements are fulfilled. Each requirement is fulfilled when all of its recovery criteria are met. Criteria are evaluated by the processes outlined under each criterion*

The five delisting requirements for coho salmon recovery in California are:

- I. Maintain<sup>4</sup> and protect<sup>5</sup> the number and size of key populations of coho salmon.
- II. Maintain and increase the number of spawning adults and maximize freshwater and estuary survival of juveniles in basins to a level that reduces the probability of extinction to an insignificant level.<sup>6</sup>
- III. Maintain, and increase the range and distribution of coho salmon to a level that reduces the probability of extinction of an ESU to an insignificant level.
- IV. Maintain and protect habitat essential for coho salmon.
- V. Maintain, improve, and restore coho salmon habitat to a level that reduces the probability of extinction to an insignificant level.

Important points to remember:

- Because the California Central Coast ESU will be listed as endangered, there will be two sets of criteria. The first set will be developed to determine when the CCC ESU can be down-listed from endangered to threatened. The second set will be for delisting.<sup>7</sup>
- In conjunction with the National Marine Fisheries Service, the Department will be developing metrics for the criteria. Though final adopted metrics may not be identical, they will be consistent between the two agencies.
- Information the Department is gathering through presence-absence surveys, initiated in 2000 and still on-going, will be utilized to establish both the index sampling sites and pool of random sampling sites referred to below in several criteria.
- A method to determine the risk of extinction of coho populations will be developed in cooperation with the federal TRTs.

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<sup>4</sup> Maintain: Do not allow further decline (i.e., number and size of populations, amount and quality of habitat).

<sup>5</sup> Protect: to ensure the status and integrity of coho salmon populations, habitat, and essential ecological processes.

<sup>6</sup> Watershed basin: Not using HSA or HA designations at this time, because they are technical GIS terminology and because the watershed scale has not been determined.

<sup>7</sup> The Southern Oregon-Northern California Coastal ESU will be listed as threatened so will have one set of criteria for delisting.

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I. Maintain and protect the number and size of key populations of coho salmon.

*Criterion 1 Key populations are maintained at levels that reduce the risk of their extinction to insignificant levels.*

Process

- a. Identify populations within each ESU.
- b. Determine population levels that reduce the risk of local extinction to insignificant levels.
- c. Develop and implement population monitoring.
- d. Identify and apply appropriate protection mechanisms for key populations.

II. Maintain and increase the number of spawning adults and maximize freshwater and estuary survival of juveniles in basins to a level that reduces the probability of extinction to an insignificant level.

*Criterion 1 Maintain current level of spawning and outmigration.*

Process

- a. Conduct inland spawning surveys.
- b. Conduct ocean and nearshore surveys.<sup>8</sup>
- c. Conduct juvenile outmigration surveys.

*Criterion 2 Attain a sustained, increased (specified) level in number of adults returning to spawn at documented, recent spawning sites within basins*

Process

- a. Determine what constitutes ‘sustained’ and the specific increases required.
- b. Conduct inland spawning surveys.
- c. Conduct ocean and nearshore surveys.
- d. Conduct juvenile outmigration surveys.

*Criterion 3 Attain a sustained, increased (specified) level<sup>9</sup> in new spawning sites within basins.*

Process

- a. Determine what constitutes ‘sustained’ and the specific increases required.
- b. Conduct inland spawning surveys.

*Criterion 4 Attain a sustained, increased (specified) level of juvenile survival within basins and estuaries.<sup>10</sup>*

Process

- a. Determine what constitutes ‘sustained’ and the specific increases required.
- b. Conduct juvenile outmigration surveys.
- c. Conduct juvenile estuarine surveys.

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<sup>8</sup> Being discussed as an alternate or complement for inland surveys for adult coho salmon.

<sup>9</sup> Sustained increase: consistent detection of change.

<sup>10</sup> Survival, and not merely production, of young fish is the issue of importance.

III. Maintain and increase the range and distribution of coho salmon to a level that reduces the probability of extinction of an ESU to an insignificant level.

Range is primarily a geographic consideration; distribution is primarily an issue of ecology. Currently, both factors are issues for both ESUs.

Range

The Department is investigating the likely potential to increase the range of the SONCC ESU in the upper Eel River basin, below Scott Dam/Lake Pillsbury, and in the watersheds that flow directly into San Francisco Bay in the CCC ESU. These criteria assume that the areas mentioned are realistic for re-expansion of current range of coho salmon.

*Criterion 1 Maintain the current range and distribution of coho salmon.*

Process

- a. Population monitoring (presence/absence, adult, juvenile outmigration)

*Criterion 2 Increase the range of coho salmon to represent the full range (north, south, inland) once occupied.*

To make the decision on what is realistic, three parameters will be evaluated:

1. What we know about the present range in each ESU;
2. What we know about the historic range in each ESU;
3. What current conditions exist that might limit or prevent range expansion.

Process

- a. Determine what is realistic for range expansion for each ESU.
- b. Conduct annual presence-absence surveys.

*Criterion 3 Coho salmon are consistently present in across the CCC from Santa Cruz County to Punta Gorda in Mendocino County to restore coastal connectivity.*

Process

- a. Conduct annual presence-absence surveys.

Distribution

*Criterion 1 Attain a sustained (specified) percent increase of suitable streams within basins where there is persistent presence of coho salmon.<sup>11</sup>*

Process

- a. Determine what constitutes 'sustained' and the target percent increases.
- b. Conduct annual presence-absence surveys

*Criterion 2 Attain a sustained (specified) percent increase in the number of suitable streams within basins where there is a persistent presence of improved*

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<sup>11</sup> Both permanent index sites and rotating random sites will be utilized in the field sample methodology.

*brood-year representation, from one year out of 3 present to two out of three present.*<sup>12</sup>

Process

- a. Determine what constitutes ‘sustained’ and the target percent increase.
- b. Conduct brood year analysis.

*Criterion 3 Attain a sustained (specified) percent increase in the number of suitable streams within basins where there is a persistent presence of the full brood-year compliment.*

Process

- a. Determine what constitutes ‘sustained’ and the target percent increase.
- b. Conduct brood year analysis.

IV. Maintain and protect habitat essential for coho salmon.

*Criterion 1 Essential habitat, including biological refugia, for coho salmon, is identified, mapped, and protected in each basin.*

Process

- a. Analyze existing watershed assessments and plans.
- b. Gather new necessary field data.
- c. Conduct new necessary mapping.
- d. Develop and apply a habitat quality index (HQI) based on a standard suite of measurable habitat quality parameters.

*Criterion 2 Appropriate mechanisms to protect essential habitat are applied in each basin.*

Process

- a. Identify and apply appropriate protection mechanisms for essential coho habitat.

To be determined and likely to have aspects that are universal for the species and unique for the area. Currently, these mechanisms are being identified through the recovery strategy development and are taking the form of statewide or ESU-wide recommendations (“universal”) and specific recommendations are different hydrologic scales within watersheds (“unique”).

V. Maintain, improve, and restore coho salmon habitat to a level that reduces the probability of extinction to an insignificant level.

*Criterion 1 Maintain areas where coho salmon habitat have already been restored or enhanced.*

Process

- a. Identify and apply appropriate maintenance procedures for restored or enhanced coho habitat.
- b. Develop and apply a HQI based on a standard suite of measurable habitat quality parameters.

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<sup>12</sup> There likely will also be a 0 of 3 to 1 of 3 metric for the CCC ESU.

To be determined and likely having aspects that are universal for the species and unique for the area.

*Criterion 2 Restore, enhance, and maintain habitat already identified for restoration to benefit coho salmon.*

Process

- a. Analyze existing watershed assessments and plans.
- b. Use Department Salmonid Restoration Grants Program.
- c. Use other restoration programs that will benefit coho salmon.
- d. Develop and apply a HQI based on a standard suite of measurable habitat quality parameters.

*Criterion 3 A (specified) amount of coho habitat is restored, enhanced, and maintained in a (specified) condition within basins<sup>13</sup>.*

Process

- a. Evaluate and prioritize non-assessed coho salmon habitat, including biological refugia, for restoration and enhancement potential.
- b. Use Department Salmonid Restoration Grants Program.
- c. Use other restoration programs that will benefit coho salmon.
- d. Use watershed councils and organizations with a component focusing on coho salmon restoration and recovery.
- e. Determine amount, quality, and distribution of habitat necessary to reduce the probability of extinction for coho salmon to a level to be considered insignificant.
- f. Develop and apply a HQI based on a standard suite of measurable habitat quality parameters.
- g. Conduct watershed assessment, monitoring, and analysis.

## *FRAMEWORK FOR RESTORATION OF FISHERIES*

An additional goal of the recovery strategy is to restore coho salmon numbers to the point where tribal, recreational, and commercial fishing may occur. It is the intention of the Department to collaborate with the appropriate tribes and the federal government to accomplish the recovery goal.

### VI. Reach and maintain coho salmon population levels to allow for the resumption of tribal, recreational, and commercial fisheries for coho salmon in California.

Coho population levels allowing for fishing exceed the numbers necessary for recovery. Hence, restoration of the fisheries would occur some time after delisting is realized. Restoration of the fisheries would be implemented and monitored through fishing regulations governed by the California Fish and Game Commission and the Pacific Fisheries Management Council and not by the Department through CESA. After delisting is achieved, the Department would determine how to continue implementation of

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<sup>13</sup> Permanent protection is not yet addressed and is an important element to be developed.

appropriate elements of the recovery strategy pursuant to and consistent with other applicable local, state, and federal law and voluntary measures.

### Recreational Fishing

*Criterion 1 Commence selected recreational fishing for (specified) years once adult populations have been sustained at or exceeded (specified) level, at described in Goals I and II.<sup>14</sup>*

- a. Selected recreational fishing
  - i. Sites selected based on relative health of coho salmon runs and recreational fishing opportunity and interest.

#### Process

1. Conduct coho salmon population monitoring.
2. Conduct inland spawning surveys.
3. Conduct creel surveys.<sup>15</sup>
  - a. This would include a summary evaluation of what is known about INCIDENTAL MORTALITY to coho salmon from other recreational fishing.

*Criterion 2 Expand recreational fishery to the fullest extent feasible for (specified) years once it is shown that preliminary recreational fisheries have not reduced sustained levels of coho salmon in each ESU over initial (specified) years of fishing<sup>16</sup>.*

#### Process

1. Conduct coho salmon population monitoring.
2. Conduct inland spawning surveys.
3. Conduct creel surveys.

*Criterion 3 Resume permanent, recreational fisheries once expanded recreational fisheries have not reduced sustained levels of coho salmon in each ESU over the initial (specified) years of fishing<sup>17</sup>.*

#### Process

1. Conduct coho salmon population monitoring.
2. Conduct inland spawning surveys.
3. Conduct creel surveys.

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<sup>14</sup> Should be set in a 3-year increment and have an emergency trigger to close recreational fisheries based on events that could threaten coho salmon in a given year.

<sup>15</sup> There is the potential to allow for an experimental fishery, which would not penalize those who caught coho salmon, prior to commencing a longer preliminary fishery. A creel survey strategy would be used to monitor what would occur.

<sup>16</sup> Some areas, likely in the CCC ESU, may require decades, if ever, to allow for any recreational fishing.

<sup>17</sup> Extent of permanently established, recreational fishery will need to be based on any differential, regional effects to coho salmon by recreational catch.

## Commercial Fishing

There are two, essential issues for the commercial fishing industry. The primary need is to have coho salmon recovery so that by-catch of coho salmon, when fishing for Chinook or other more abundant salmon species, is no longer a threat to coho salmon. A secondary objective of re-establishing a coho salmon commercial fishery is acknowledged and is not being dismissed at this time.

*Criterion 1 Establish experimental ocean harvesting of other anadromous salmonids for (specified) years once the numbers of ocean coho salmon are sufficient to allow for removal of BY-CATCH restrictions.<sup>18</sup>*

### Process

1. Conduct coho salmon population monitoring.
2. Conduct inland spawning surveys.
3. Conduct creel surveys.
4. Conduct commercial vessel catch monitoring.
5. Conduct commercial landing monitoring.

*Criterion 2 Commence experimental, limited commercial coho salmon fishery for (specified) years once it has been determined elimination of by-catch restriction for commercial harvest has not reduced sustained levels of coho salmon in each ESU over initial (specified) years of fishing.*

### Process

1. Conduct coho salmon population monitoring.
2. Conduct inland spawning surveys.
3. Conduct creel surveys.
4. Conduct commercial vessel catch monitoring.
5. Conduct commercial landing monitoring.
6. *Conduct focused, financed, experimental commercial fishing.*<sup>19</sup>

*Criterion 3 Establish a limited commercial coho salmon fishery for (specified) years after it has been determined that the experimental commercial fishery has not reduced sustained levels of coho salmon in each ESU over the initial (specified) years.*

### Process

1. Conduct coho salmon population monitoring.
2. Conduct inland spawning surveys.
3. Conduct creel surveys.
4. Conduct commercial vessel catch monitoring.

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<sup>18</sup> PFMC regulates ocean fishing. Part of that annual evaluation is by-catch restrictions on various fisheries due to the status of coho salmon. Once this restriction is deemed unnecessary by PFMC, commercial recovery criteria would be triggered.

<sup>19</sup> Finance a limited number of commercial vessels to specifically investigate the ability to and impact of commercial fishing for coho salmon.

5. Conduct commercial landing monitoring.

### 3.4 Watershed Prioritization

The CRT recommends the adoption of a three-tiered process to prioritize HSAs for coho salmon recovery. This approach: 1) identifies for maintenance and recovery those HSAs supporting the best coho salmon populations in California<sup>20</sup> and identifies those coho salmon populations that are currently at risk of extinction<sup>21</sup>; 2) provides a ranking system for guiding recovery planning actions among HSAs; and 3) identifies those HSAs having barriers to migration that could be corrected with ease, relative to other solutions.

Accompanying map products are intended to guide recovery planning actions. *The maps and criteria used to develop them should be considered general guidelines in guiding watershed recovery planning and restoration actions rather than absolute*<sup>22</sup>. Maps and explanation of their use are found in Appendix D.

In HSAs considered refugia for coho salmon, recovery planning will include actions that preserve, protect, and enhance these best remaining populations and their habitats. These HSAs, identified on maps 1A and 1B, should be considered a top priority for Department of Fish and Game (DFG) resources and resources available for restoration of specific watershed problems.

Each population of coho salmon has potential to represent unique genetic and life history attributes. Some populations of coho salmon are at greater risk of extinction than others, particularly those in the central coast of California. Identifying these populations will enable resource managers and others to guide actions to avoid and begin recovery. HSAs in which populations of coho salmon are at risk of extinction, identified on maps 2A and 2B, should also receive special consideration for maintenance and recovery actions.

Ranking of HSAs relative to their potential for coho salmon recovery is intended to help guide recovery planning actions that may improve habitat within these HSAs. This ranking incorporated; information on coho salmon populations, watershed condition and risks to salmon within these HSAs. HSAs scoring higher in this ranking should be given priority in the expenditure of DFG resources or resources available for restoration, other considerations being equal. Rankings of HSAs for maintenance and recovery actions are presented in maps 3A and 3B.

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<sup>20</sup> Refugia watersheds are defined here using presence of coho salmon, since abundance or population information is not available for all watersheds in the state. In the SONC ESU, those HSAs having consistent presence of coho salmon greater than 50% are considered refugia, in the Central California Coast ESU, those HSAs having consistent presence of coho salmon greater than 10% are considered refugia.

<sup>21</sup> Population risk, as used here represents risks to coho salmon from human actions, since state wide coho salmon population abundance and genetic data are not available. It combines risk (human density, water diversions, road density) and population parameters (consistent presence of coho salmon, isolation index for coho salmon populations, and run length of coho salmon populations).

<sup>22</sup> Some situations may over-ride or alter recommended priorities. Examples include, but are not limited to, willing land owners, high cost-shares, unique funding opportunities or partnerships, multi-species projects, etc. Cost effectiveness must be considered regardless of priorities.

Recovery planning actions in watersheds experiencing barriers to migration will include providing passage for both juvenile and adult coho salmon. The distribution of barriers is illustrated in maps 4A and 4B. These HSAs should be viewed as cost-effective opportunities to provide increased habitat, relative to other recovery planning actions.

The databases supporting this prioritization should be updated periodically (perhaps at 3-5 year intervals). This would allow review and change, if warranted, of the HSA rankings.

Finally, the prioritization criteria proposed is for recovery of coho salmon (as per CESA and Fish and Game Code) and may or may not apply to other salmonid species such as Chinook salmon, steelhead and coastal cutthroat trout.

1) Refugia HSAs<sup>23</sup> (Maps 1A and 1B) and Risk of Extinction (Maps 2A and 2B)

- a) Rational: Those HSAs in the SONC ESU having consistent presence of > 50% should be considered refugia watersheds. Within the Central California Coast ESU HSAs having consistent presence of > 10% should also be considered refugia watersheds. However, even these HSAs have problems that could reduce productivity and these problems should be addressed.

Risk of extinction to coho salmon is ranked on HSA risks and coho population parameters, since coho salmon population abundance and genetic data are not available state-wide. It combines risk (human density, water diversions, road density) and population parameters (consistent presence of coho salmon, isolation index for coho salmon populations, and run length of coho salmon populations). Those watersheds in which risk of extinction is high should be given equal priority as refugia watersheds.

- b) Action:
  - i) On public lands, consider full maintenance and recovery of instream and riparian areas.
  - ii) On private lands, provide incentives for riparian maintenance and recovery and recovery planning activities that maintain and enhance coho salmon habitat.
  - iii) Identify any problems within these HSAs and recommend actions (for example; restoring estuarine habitats in Eureka Plain, Redwood Creek and Smith River).
  - iv) Recommend that refugia watersheds receive priority in the application of California coho recovery team statewide recommendations.

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<sup>23</sup> Maps and explanation of how to use them are found in Appendix D.

## 2) Restoration Potential (Maps 3A and 3B)

- a) Rational: Those HSAs scored higher for recovery planning actions are known to support populations of coho salmon and have potential habitat that has been compromised. Coho salmon populations in HSAs ranking high (4-5) in the combined population, risk and habitat potential categories should have potential to respond when restoration actions are taken.
- b) Action:
  - i) Review the CRT recommendations for these HSAs and determine if: near-term (< 9 years) actions are adequate to maintain these populations at their current level, and
  - ii) Review the CRT recommendations for these HSAs to determine if near-term and long-term actions will allow for expansion of these populations in all brood-years.
  - iii) If identified recovery planning actions satisfy categories (b,i) and (b,ii) above, use the prioritizing scheme to guide watershed restoration and other identified recovery planning actions. If identified recovery planning actions do not satisfy categories (b,i) and (b,ii) above, then recommendations must be upgraded.
  - iv) Review the CRT recommendations to determine if they are specific enough to direct restoration actions. If not, do we currently have the knowledge to upgrade the CRT to be more specific?
  - v) If we currently do not have knowledge to make CRT recommendations more specific, are there locally-based watershed groups working or landowners who are willing to work on watershed assessments to develop specific actions to restore coho habitat? (Smith River Plan, Salmon River Plan, Redwood Creek NCWAP, Mattole NCWAP, Eel River Draft Plan, etc.).
  - vi) If not, consider re-directing DFG staff to begin such a process.

## 3) Disconnected Habitats (Maps 4A and 4B)

- a) Rational: Eliminating barriers to migration represent among the most effective restoration actions that can be taken. Barriers to migration limit the distribution of coho salmon and limit recovery potential. Removing barriers, including but not limited to those created by federal, state, county or private road culverts, rail crossings, tide gates and small impoundments are high priorities. Addressing levees for flood control, access over larger impoundments, other hydraulic or thermal barriers may present greater challenges, but must also be considered important components of disconnected habitats.

- b) Action:
- i) Plot location of barriers and score barriers using two criteria: 1) their relative importance to the amount of coho salmon habitat created by their removal and 2) the relative ease or cost of their removal (culverts, tide gates and small impoundments = 3, levees and large impoundments = 2, thermal and hydraulic barriers, and other barriers requiring sites specific evaluation = 1) .
  - ii) Compare CRT recommendations with plotted data.
  - iii) Determine if CRT recommendations are specific enough to direct restoration actions.

## **4.0 RANGE WIDE RECOMMENDATIONS**

The CRT sees the function of range wide recommendations as generally appropriate to coho recovery. In some cases, the language of a range wide recommendation has literally been repeated in a number of watershed-specific recommendations to reflect the CRT's judgment of the importance of that recommendation in the watershed.

### **4.1 Stream Flow**

#### **4.1.1 Consensus Recommendations**

RW I-B-01 DFG in coordination with SWRCB and NOAA Fisheries to identify adequate designs, develop site-specific designs, and promote passive diversion structures that are self-regulating. Passive diversion devices are designed to allow diversion of water only when minimum flow requirements are exceeded.

RW I-D-01 Encourage elimination of unnecessary and wasteful use of water from coho salmon streams, through education components of this plan. Encourage water conservation for existing uses.

RW-I-D-02 Improve coordination between agencies to avoid and minimize the adverse effects of future or reopened permits and licenses for water diversions on coho salmon. Promote consistency and pool limited resources to implement a regional interagency task force for regional project review (water rights, 1601/1603, CESA). Include staff that represent DFG, SWRCB, RWQCB, NOAA Fisheries and, where applicable, other agencies. Where feasible, use programmatic, cost-efficient approaches and incentives to working with landowners to permit off-channel storage ponds. For the CCC ESU, the SWRCB shall consider the June 23, 2002 Draft Guidelines developed by NOAA Fisheries and DFG in the water rights proceedings for coho streams including:

- a. Season of diversion and off-stream storage, and
- b. Maintenance of the natural hydrograph, where appropriate.

Encourage NOAA Fisheries and DFG to work with SWRCB to modify the guidelines to be appropriate to the SONCC ESU as needed.

RW I-D-04 SWRCB, RWQCB, DFG, CDF, Caltrans, and counties, in cooperation with NOAA Fisheries, should evaluate the rate and volume of water drafting for dust control in streams or tributaries and where appropriate, minimize water withdrawals that could impact coho salmon. These agencies should consider existing regulations or other mechanisms when evaluating alternatives to water as a dust palliative (including EPA-certified compounds) that are consistent with maintaining or improving water quality.

RW I-D-05 DFG should explore ways to improve implementation of the DFG Lake or Stream Alteration Notification and Agreement Process to protect coho salmon from the adverse affects of projects that would alter the bed, banks, channel, or natural flow of coho salmon streams.

RW I-D-06 DFG, CDF, SWRCB and the RWQCB should pursue funding for the assessment, information management, and regulatory compliance monitoring of water diversions within the coho salmon range. Direct DFG and SWRCB to coordinate the upgrade of the water rights information system so that water allocations can be readily quantified by watershed.

RW I-D-07 Provide conservation incentives to minimize negative effects on coho salmon of water drafting for roads and fire suppression, including, but not limited to:

- a. Streamline permitting for actions that result in an improvement of instream flows;
- b. Support multiple uses of water storage systems (e.g., USFS, CDF, counties, landowners); and
- c. Cost-share funding where low-flow, trickle recharge water storage is used to avoid adversely affecting stream flow or coho salmon habitat.

RW I-D-08 Support and expand the DFG Streamflow Evaluation Program:

- a. To the extent resources, including funding and positions, are available, DFG should conduct stream flow studies to support DFG recommendations for water diversion projects and implement Public Resources Code §§ 10000-10005 for priority coho salmon streams.
- b. The Recovery Team supports providing additional resources to DFG, including funding and positions, to enhance DFG's ability to conduct flow studies.

#### **4.1.2 Non Consensus Recommendations**

RW I-C-01 Direct county and city planning toward water supply development and growth that are not harmful to coho salmon habitat. Work in coordination with the California Department of Housing and Community Development, Association of Bay Area Governments, counties, cities, water districts, and others. Provide funding and education to accomplish this. (Yes=12; No=2; Abstain=5)

RW-I-D-03 DFG and SWRCB to provide incentives to remove or convert direct diversions to off-stream storage ponds or tanks and to restrict the season of diversion to December through March to provide sufficient flows for coho salmon while ensuring the permitted use need is met. (Yes = 12; No = 0; Abstain = 1)

## **4.2 Water Rights**

### **4.2.1 Consensus Recommendation**

RW II-B-03a Within the range and distribution of coho salmon, diversion screens shall be constructed, repaired, upgraded, reconstructed, and maintained in accordance with DFG/NOAA Fisheries Screening Criteria, or responsible parties must obtain incidental take authorizations for operation of the screens. Those that comply with the DFG/NOAA Fisheries Screening Criteria will be assumed by the Department to not take coho salmon with respect to the screens.

### **4.2.2 Non Consensus Recommendations**

RW II-A-01 DFG should request SWRCB to review authorized diversions that have no provisions to protect coho in order of coho priority streams. Develop incentives for users of authorized diversions under 250 cubic feet per second to rework the diversions to protect coho. (Yes=18; No=0; Abstain=1)

RW II-A-02 Identify unauthorized diversions. (Yes=18; No=0; Abstain=1)

RW II-A-04 Petition the SWRCB to add priority coho salmon streams to the Declaration of Fully Appropriated Streams where flows are a limiting factor. DFG should continue to participate in the water rights application processes to ensure where applicable requisite findings are made in response to applications, that water is not available for appropriation. (Yes=18; No=0; Abstain=1)

RW-II-A-05

- a. Encourage SWRCB to quantify water use and availability in coho salmon streams.
- b. Direct DFG to participate in water rights application proceedings before the SWRCB to ensure that water availability analyses on priority coho salmon streams accurately reflect water use and availability.
- c. Encourage SWRCB to require installation of stream flow gauging devices on priority coho salmon streams when approving water development projects.
- d. Encourage SWRCB to continue to require riparian and pre-1914 water users to file annual statements of diversion and use.
- e. Direct DFG and SWRCB to coordinate the upgrade of the water rights information system so that water allocations can be readily quantified by watershed. (Yes=18; No=0; Abstain=1)

RW-II-B-01 Pursue opportunities to acquire or lease water, or acquire water rights from willing sellers for coho salmon recovery purposes. DFG should develop incentives for water right holders to petition the SWRCB to dedicate in-stream flows for the protection of coho salmon. (Votes: Yes=18; No=0; Abstain=1)

RW II-B-02 The Recovery Team recommends that counties and cities in cooperation with DFG and SWRCB evaluate the cumulative effects to coho salmon from the creation of new riparian water rights associated with land sub-divisions and rezonings. Where cumulative impacts on flows will be detrimental to coho salmon, consider requirements that would not allow riparian water rights for the new parcels at the time sub-division approvals are made. (Votes: Yes=14; No=1; Abstain=4)

### **4.3 Fish Passage**

#### **4.3.1 Consensus Recommendations**

RW III-A-01 Fish Passage Forum should work with federal, state, and county entities, private landowners, and other interested parties to continue and complete assessments and prioritizations for correction of fish passage barriers.

RW III-A-02 The State of California should maintain a database of barriers to fish passage.

RW III-C-01 To provide fish passage, encourage funding authorities to allocate adequate resources to prioritize and upgrade culverts within the range of coho salmon to pass 100-year flows and the expected debris loads (e.g., LWD that might be mobilized).

RW III-C-02 DFG and NOAA Fisheries should:

- a. Evaluate NOAA Fisheries standards for passage at summer dams;
- b. Develop a joint policy and guidelines that require passage at summer dams; and
- c. Implement the recommendations.

RW III-C-04 Encourage FEMA to fund upgrades to flood-damaged facilities to meet the requirements of the Endangered Species Act.

RW III-C-06 Encourage funding authorities to allocate adequate budgets to federal, state, and local agencies for fish passage projects. This includes, but is not limited to, funding for road maintenance programs and capital project activities.

#### **4.3.2 Non Consensus Recommendations**

RW III-C-03 DFG and NOAA Fisheries evaluate the desirability and feasibility of trapping and relocation to underutilized high quality habitat of soon-to-be-terminal coho salmon due to stranding. Implement recommendations. Develop a policy to address this issue and implement recommendations arising from the evaluation. (Yes=18; No=0; Abstain=1)

SW III-C-05 DFG and NOAA Fisheries evaluate the desirability and feasibility of trapping and relocation to underutilized, high quality habitat of soon-to-be-terminal coho

salmon due to high density of coho salmon. Develop a policy to address this issue and implement recommendations arising from the evaluation. (Yes=18; No=0; Abstain=1)

#### **4.4 Pollutants**

##### **4.4.1 Consensus Recommendations**

RW-V-E-01: DFG shall cooperate with local environmental health agencies and other agencies to continue outreach, education, and enforcement related to hazardous materials spills, illegal dumping, and household hazardous waste and hazardous materials spills in creeks. Continue education on the Cal Tip program.

RW-V-E-03: DFG should continue to fund and support the Cal Tip program. DFG in coordination with NOAA Fisheries, SWRCB, and the RWQCBs should provide additional training for wardens to identify water pollution problems and promote coordination with the RWQVCBs. DFG should also coordinate water rights training with SWRCB staff.

##### **4.4.2 Non Consensus Recommendations**

RW V-B-01 Improve water quality by reducing or minimizing point and non-point domestic and municipal sources of nutrient input (i.e., sewage treatment plant discharge, septic system discharge, and storm drain runoff). Support efforts by cities and rural communities to complete system upgrades to achieve Clean Water Act compliance. (Votes: Yes=17; No=2; Abstain=0)

*Alternate language: Improve water quality by reducing or minimizing domestic and municipal sources of nutrient input (i.e., sewage treatment plant discharge, septic system discharge and storm drain run off). Support efforts by cities and rural communities to complete system upgrades to achieve Clean Water Act compliance.*

#### **4.5 Sediments**

##### **4.5.1 Consensus Recommendations**

RW-VI-A-02 Identify and prioritize specific sediment source locations for treatment that may deliver sediment to coho streams. Encourage protocols such as the Fish and Game Habitat Restoration Manual Guidelines. Educate and provide technical assistance to landowners to implement upgrades.

RW-VI-B-01 The Recovery Team encourages agencies and landowners to restore natural drainage patterns and minimize hydrologic connectivity of roads, where feasible. Encourage funding agencies to provide annual funding for implementation of the program.

RW-VI-B-02 The Coho Recovery Team supports local government and private landowner actions to reduce identified sediment input from upslope sources. Prioritize remediation activities, which would include slope stabilization and minimizing sediment production.

RW-VI-C-01 Encourage when necessary and appropriate, restricted access to unpaved roads in winter to reduce road degradation and sediment release. Where restricted access is not feasible, encourage measures such as rocking to prevent sediment from reaching coho streams.

RW-VI-D-01 Encourage Federal, State, and county agencies and private landowners to reduce impacts to coho salmon habitat from public and private road systems. Continue road and/or watershed assessments to identify and prioritize sources and risks of road-related sediment delivery to watercourses. Support activities to:

- a. Reduce road densities where necessary and appropriate;
- b. Upgrade roads and road maintenance practices to eliminate or reduce the potential for concentrating run-off to streams during rainfall events. Employ best available technology when appropriate;
- c. Decrease potential for stream flow to become diverted at road crossings during high flow events resulting in flow along the road that returns to the channel at undesirable locations;
- d. Stabilize slopes to minimize or prevent erosion and to minimize future risk of eroded material entering streams;
- e. Minimize alteration of natural hill slope drainage patterns; and
- f. Encourage funding authorities to allocate adequate budgets to federal, state, and local agencies and private landowners for road maintenance activities, capital project activities, and dedicated funding to pay for fish passage projects.

#### **4.5.2 Non Consensus Recommendations**

There are no non consensus recommendations on Sediments.

### **4.6 Water Temperature**

#### **4.6.1 Consensus Recommendations**

There are no consensus recommendations on Water Temperature.

#### **4.6.2 Non Consensus Recommendations**

RW-X-B-01 Identify and implement actions to maintain and restore water temperature to meet habitat requirements for coho salmon in specific streams. (Yes=18; No=0; Abstain=1)

## **4.7 Large Woody Debris**

### **4.7.1 Consensus Recommendations**

RW-XII-B-01a Prioritize for maintenance riparian vegetation communities that provide good opportunity for conifer LWD recruitment. Communicate the prioritization to appropriate agencies, restoration funding groups, and landowners.

RW-XII-B-01b Prioritize for restoration riparian vegetation communities for LWD recruitment. Communicate the prioritization to appropriate agencies, restoration funding groups, and landowners.

RW-XI-B-02 The Coho Recovery Team recommends funding and permit incentives be made available to restore stream habitat where lack of LWD, riparian cover, simplified stream morphology and other conditions have been determined to be limiting factors to coho salmon.

### **4.7.2 Non Consensus Recommendations**

RW-XII-B-03 Appropriate federal, state, and county agencies shall utilize and enforce all existing laws including but not limited to:

- a. DFG streambed alteration agreements (1600 process);
- b. Coastal Zone ordinances;
- c. State Lands Commission regulations;
- d. County ordinances; and
- e. Any other legal means

To prevent illegal removal of large woody debris (LWD) within the 100-year flood plain and estuaries with the intent of protecting habitat for the benefit of coho salmon, no LWD should be removed unless it is allowed for health and/or safety purposes under existing law or approved processes. Any LWD removed for health and safety reasons should be made available to the resource agencies for restoration. Any resultant fines should be allocated to mitigate the loss of LWD and expedite coho salmon recovery. Fines should be set high enough to fully mitigate any in-stream LWD enforcement. (Yes=10; No=9; Abstain=0)

*Alternate language: Appropriate federal, state, and local agencies shall utilize and enforce all existing laws to prevent the illegal removal of large woody debris (LWD) within the riparian corridor of streams where coho presence has been identified. All LWD located on state public lands within the estuaries and riparian corridors should be retained unless it is a threat to public health or safety or impedes existing access to and through the public land. Where a planning watershed has been analyzed and LWD is determined to be a limiting factor for the recovery of coho salmon private landowners*

*are encouraged to retain LWD within the estuaries and riparian corridors of those streams where coho presence has been identified. For those stream courses determined by DFG to be of high priority for the recovery of coho salmon, the State is encouraged to enter into an agreement to compensate private landowners for retaining LWD and trees designated for future LWD recruitment if such material has merchantable value in terms of lumber production.*

## **4.8 Stream Complexity**

### **4.8.1 Consensus Recommendation**

RW-XIII-C-01 Work with USACE to modify maintenance manuals for consistency with habitat requirements and protection for coho salmon.

### **4.8.2 Non Consensus Recommendation**

RW-XIII-C-02 Where appropriate and feasible, work with all parties, including landowners, to reconfigure levees and channelized streams to benefit coho salmon. (Yes=18; No=0; Abstain=1)

## **4.9 Refugia**

### **4.9.1 Consensus Recommendations**

RW-XV-A-01 Identify key refugia and inform land managers and other agencies.

RW-XV-B-01 Maintain or re-establish geographic distribution of coho salmon by continuing to allocate substantial improvement efforts towards identified key refugia with substantial coho salmon populations and/or otherwise suitable conditions.

### **4.9.2 Non Consensus Recommendation**

RW-XV-A-02 Identify key coho salmon populations, inform land managers and other agencies of their locations at an appropriate scale, and implement measures to maintain those populations. (Yes = 11; No = 0; Abstain = 1)

## **4.10 Habitat Fragmentation**

### **4.10.1 Consensus Recommendations**

RW-XVI-B-01 Restore habitat connectivity between coho populations in coastal and low gradient inland streams to promote the long term viability of coho salmon.

RW-XVI-B-02        Reduce habitat fragmentation by restoring fish passage between high quality habitat channels to allow for gene flow between breeding populations within targeted coho watersheds.

#### **4.10.2 Non Consensus Recommendations**

There are no non consensus recommendations on Habitat Fragmentation.

### **4.11 Competition**

#### **4.11.1 Consensus Recommendations**

RW-XVIII-A-01        Develop a rapid-response eradication plan for when invasive non-native species that negatively affect coho are newly detected.

RW-XVIII-A-02        Develop management guidelines to mitigate the impacts of non-native fish species on coho.

RW-XVIII-A-03        Encourage removal of non-native fish species from stock ponds where these fish pose a threat to coho salmon.

#### **4.11.2 Non Consensus Recommendations**

There are no non consensus recommendations on Competition.

### **4.12 Hatchery Operations, Genetics and Relocation**

#### **4.12.1 Consensus Recommendations**

W-XX-B-01    Promote recovery actions that maintain the local genetic diversity of coho populations to maximize fitness and long-term viability of coho salmon.

RW-XXI-B-04a:        Apply the following policies to all coho salmon recovery hatcheries:

- a.        The purpose of a recovery hatchery is to aid and/or accelerate recovery of coho salmon by reducing risk of extinction due to one or more of a number of factors that result from low abundance, cohort failure, and/or drastic population fluctuation. The focus of a recovery hatchery is to reduce extinction risk and improve natural production in accordance with Department, FGC, and federal Endangered Species Act (ESA) policies;
- b.        The Department considers recovery hatchery programs for the purpose of restoring natural runs of salmon to be unproven. The number of

- facilities should be limited to that which is necessary to meet identified coho salmon recovery needs. The number of facilities should be sufficient to meet recovery needs, but small enough to ensure that agencies can effectively coordinate recovery at the ESU and statewide level, maintain connectivity and communication among programs, resource agencies, and the public, promote efficient use of resources, and avoid overproduction of hatchery-origin coho. The number of facilities should be scaled to avoid redundancy and to ensure that recovery is not disproportionately reliant on hatchery-origin coho;
- c. In accordance with items a and b above, recovery hatchery operations will avoid excess hatchery production above that which is deemed necessary by the Department and NOAA Fisheries to meet recovery goals. The number of fish produced should be sufficient to significantly reduce the probability of extinction, accurately represent the genetic variation in the natural population, minimize random or directional genetic change in captivity, and to reestablish a self-sustaining natural run;
  - d. Recovery hatchery operations should be subsequent to or concomitant with active and focused habitat improvements designed to increase natural production, or identification of suitable, unused coho habitat, with the ultimate objective of reaching recovery goals;
  - e. All recovery hatchery programs must be part of and integral to DFG's Coho Recovery Strategy at the ESU and statewide levels;
  - f. All recovery hatchery programs must be consistent with CESA and ESA;
  - g. Recovery hatchery programs should have a planned, finite, and short term lifespan. Ideally the life of a recovery hatchery program would be only 1 – 3 generations. However, the Department recognizes that unique elements of coho salmon life-history may necessitate longer-term projects on the order of 3 – 4 generations to accomplish difficult tasks like rebuilding missing year classes or repopulating locally extinct runs. In such cases, the life-span of the recovery hatchery should be the minimum amount of time consistent with reaching specific project goals;
  - h. All operations should be continually assessed and modified to avoid establishment of a hatchery-dependent run in which the hatchery persistently acts as the source in a source-sink relationship with the natural run;
  - i. A comprehensive risk/benefit analysis will be prepared prior to the establishment of any new recovery hatchery operation;
  - j. Recovery hatcheries must be operated in a way that protects naturally recovering coho salmon populations from the possible adverse biological and monitoring effects of inadvertent hatchery influence, especially those populations specifically targeted for natural recovery and nearby populations that are not targets of hatchery-based recovery efforts;

- k. Recovery hatchery operations should be done in a way that protects all existing population of native salmonids and other native fish already living in the receiving ecosystem. An assessment (e.g., identification of species composition, size, and density measurement) should be done to determine if there will be impacts (e.g., competition, predation, niche partitioning) to fish already present;
- l. Hatchery releases should be based on the receiving ecosystem's carrying capacity. Conservation/recovery hatchery programs should only be approved in places where guideline conditions are met and habitat is not a limiting factor for the existing natural stock, where unused habitat is demonstrably available, and where competition and other negative ecological interactions between natural- and proposed hatchery-origin stock can be avoided or are minimal. Habitat availability includes demonstrably consistent connectivity of spawning habitat, rearing habitat, and corridors for migration under current conditions. In special cases, exceptions may be made for places where necessary habitat improvements are obvious, relatively easy to do in a short time, and have a high probability of substantially improving a stream's ability to support coho salmon. In these cases, recovery hatchery construction may be conditionally approved with the condition that suitable, unused coho habitat is available or that substantial progress is made toward habitat improvement prior to releasing fish. Requiring suitable habitat increases the probability of success of supplementing natural runs and will avoid creating unwanted hatchery-dependant runs;
- m. Recovery hatchery programs should be located to avoid circumventing natural patterns of reproductive isolation among populations;
- n. When considering the establishment of new facilities, coordinated efforts that are consistent with, and integral to, the overall recovery plan and involving active participation of state, federal, and tribal resource agencies, watershed groups, or stakeholder groups, will be preferred to isolated projects. Interagency and intergroup coordination is a necessary feature for establishing and operating a recovery hatchery and recovery hatchery program. Development of MOAs among participants for recovery hatchery programs should be required;
- o. Guidelines presented in this recommendation will be used by the Department along with any other appropriate information and decision-making processes to determine whether a recovery hatchery program is needed, what general kind of operation it should be, and how to operate, monitor, report, and decommission the facility; Guideline criteria should be evaluated at the population level, not on a stream or watershed basis, to ensure that hatchery operations are consistent with population viability and federal/state recovery goals;
- p. Recovery hatchery programs should have detailed operating plans, including emergency and decommission plans prior to the beginning of operations. Plans should carefully define the intended geographic

- scope of the project (e.g., run, watershed, region, ESU). These plans should include provisions for adaptive management;
- q. Steering committees or technical advisory groups consisting of teams of technical experts and management staff should be established to advise and assist in the operation of each facility. These committees must include at a minimum representatives of the appropriate federal, state, and Tribal resource agencies (including, but not limited to NOAA Fisheries, CDFG, and in some cases, USFWS and/or Tribal Fisheries Agencies), permitting agencies, and the permittee. Inclusion of other technical and management personnel to meet specific advisory needs should be included as necessary and appropriate. An independent committee of conservation professionals in specific areas of expertise (e.g., genetics, population viability, ecology) should be established for consultation on highly technical issues. Final decisions concerning hatchery operations are the responsibility of the federal and state permit holder operating the facility, and will be done in accordance with permit conditions while striving to meet coordinated recovery goals;
  - r. Research on topics that aid or accelerate recovery is an appropriate secondary use for recovery hatchery programs and their products;
  - s. The Department will coordinate with NOAA Fisheries on the establishment and operation of recovery hatchery programs; and
  - t. Appropriate federal and state permitting is required prior to the operation of any recovery hatchery or recovery hatchery program.

RW-XXI-B-05: The Department should establish or maintain the following management, monitoring, and evaluation elements for hatcheries:

- a. Obtain accurate adult censuses of natural- and hatchery-origin coho salmon whenever possible, including:
  - 1) Hatchery contribution to natural spawning;
  - 2) Interactions among hatchery- and natural-origin coho salmon; and
  - 3) Estimate natural- and hatchery-origin stray rates;
- b. Continue and expand efforts to gather up-to-date baseline population genetics data on all natural- and hatchery-origin coho stocks, especially those that have the potential to be affected (positively or negatively) by hatchery production;
- c. Use historic and contemporary outmigrant and hatchery marking data to analyze production and outmigration timing of hatchery- and natural-origin stocks. Expand or modify monitoring as necessary to ensure that monitoring meets data needs for effective evaluation of hatchery/natural fish interactions;
- d. Develop an overarching plan within DFG in concert with federal and Tribal Resource Agencies for achieving and modifying hatchery goals

- in the context of recovery of natural coho salmon runs while maintaining Tribal trust obligations to mitigate for lost habitat;
- e. Develop a mechanism for proposing modifications to hatchery operations to aid recovery of coho salmon that is inclusive of all affected groups, that recognizes:
    - 1) The unique responsibilities of DFG's hatchery and biology staff and managers to manage these facilities according to DFG and FGC policies in the public trust;
    - 2) Federal Tribal trust obligations;
    - 3) NOAA Fisheries responsibilities under the ESA;
    - 4) Existing agreements, regulations, mitigation obligations, and planning processes; and
    - 5) CESA requirements and other requirements under law;
  - f. Modify hatchery operations to actively aid recovery whenever possible and to, at a minimum, avoid impeding coho salmon recovery;
  - g. Actively pursue opportunities to collect data on morphology, physiology, behavior, and ecology of hatchery- and natural-origin coho salmon with the goal of identifying and minimizing any negative fish culture or fish release effects on native, naturally occurring populations of CESA- and ESA-listed salmonids, and their habitat;
  - h. Continue evaluations of DFG hatchery management with the goal of managing hatcheries to maximize natural production and minimize negative effects;
  - i. Increase broodstock monitoring and management intensity (e.g., genetic management of broodstock, broodstock collection and spawning strategies, rearing and release strategies, evaluation of effective population size) as necessary to a level commensurate with protection of listed stocks;
  - j. Avoid ecological/behavioral impacts of coho hatchery releases on other endemic species (e.g., Chinook salmon and steelhead);
  - k. Avoid ecological/behavioral impacts of Chinook salmon and steelhead hatchery releases on coho salmon; and
  - l. Initiate assessment and monitoring of stream and ocean carrying capacity and the relation of hatchery production to density dependent effects, especially density dependent mortality.

RW-XXI-B-06: Recognize the potential of the Noyo Fish Taking Station to develop a role as a research facility due to the putative purity of the stock there and the presence of a barrier at which to collect data and control entry to and exit from the system.

RW-XXI-B-07: Recovery strategies for coho salmon in hatchery operations should be consistent with other ongoing planning processes including NOAA Fisheries' ESA recovery planning process, annual review of Trinity River Hatchery operations in the context of the federal Tribal Trust obligation of Trinity River Hatchery, and the re-licensing of the Klamath River Project, including the Iron Gate Dam and Hatchery.

RW-XXI-B-08: The Department, Tribes and NOAA Fisheries should follow through with plans to consider how or whether the coho salmon program at Trinity River Hatchery should be utilized in the recovery of Trinity Basin coho. These plans should be based on the most recent population genetics and demographic information on the composition of the existing coho run to the basin and the influence of the abundant hatchery stock on the remnant natural stock.

#### **4.12.2 Non Consensus Recommendation**

XXI-B-04b: Evaluate all potential and existing facilities for efficiency and to concentrate scarce resources. The Department recognizes that in many cases existing production facilities that were designed for a very different purpose will require substantial modification to meet recovery hatchery needs. (Yes = 16; No = 0; Abstain = 1)

### **4.13 Riparian Vegetation**

#### **4.13.1 Consensus Recommendations**

RW XXII-A-02 Where necessary, provide riparian protection from livestock by providing off-site watering.

RW XXII-A-04 Encourage restoration of LWD and shade by improvement of existing riparian zones through planting, release of conifers, and control of alders, blackberries, and other competitors. DFG and others to provide incentives to landowners, such as technical support.

#### **4.13.2 Non Consensus Recommendations**

RW-II-B-02 DFG to provide, and encourage other funders to provide, funding and technical support for riparian restoration. (Yes=18; No=0; Abstain=1)

RW XXII-A-05 Inventory and evaluate on a site-specific basis the adequacy of stream buffer zones and riparian and wetland habitat on public and private lands. DFG should coordinate with other agencies with regulatory jurisdiction. (Yes=13; No=3; Abstain=3)

RW XXII-A-06 Develop and implement county, city, and landowner initiatives, including funding where appropriate, to improve stream buffers that have been determined to be inadequate. (Yes=14; No=5; Abstain=0)

RW-XXII-B-03a: Federal, state, and local agencies utilize and enforce to the extent possible any applicable laws under their respective jurisdictions to prevent or minimize and mitigate the removal of LWD from rivers, streams and estuaries that may be used by coho salmon. Examples of these laws included, but are not necessarily limited to: Fish and Game Code section 1600 et seq; coastal zone ordinances; State Lands Commission regulations; and county ordinances. (Yes = 10; No = 3; Abstain = 2)

RW-XXII-B-03b: Encourage voluntary retention, recruitment, and/or placement of LWD that is not otherwise required by law and supports incentives (regulatory or other) for this purpose. (Yes = 10; No = 3; Abstain = 2)

#### **4.14 Estuaries**

##### **4.14.1 Consensus Recommendation**

RW-XXIII-E-01: Adopt the general policy of restoring estuarine habitat and the associated wetlands and sloughs by providing fully functioning habitat. Fully functioning habitat includes:

- a. Restoration of historic estuarine areas to maximize available estuarine habitats and tidal prisms;
- b. Free passage for adult and juvenile coho salmon to all estuarine areas;
- c. Adequate instream structure (cover and complexity);
- d. Adequate riparian habitat;
- e. Eradication of invasive exotic flora and fauna;
- f. Protection of habitat quality by providing suitable water quality and quantity input to estuaries;
- g. Protection and restoration of coho prey habitat; and
- h. Minimizing artificial breaching and associated potential negative impacts.

##### **4.14.2 Non Consensus Recommendations**

There are no non consensus recommendations for Estuaries.

#### **4.15 Land Use**

##### **4.15.1 Consensus Recommendations**

RW-XXV-A-01 Recognizing the importance of preserving a rural landscape for coho salmon, the Coho Recovery Team urges the Governor and the state legislature to continue providing subvention funds to counties for the Williamson Act contracts.

RW-XXV-B-04 The Coho Recovery Team supports continued economically sustainable management of forest and agricultural lands in the range of

coho salmon to reduce the potential for conversion to residential or commercial development.

RW-XXV-B-05                      The Coho Recovery Team recommends that within the CCC ESU counties, cities, and landowners evaluate the adequacy of riparian buffers and development setbacks where needed for protecting riparian and wetland habitat on county, city, and private lands adjacent to coho salmon streams.

### **2.15.2 Non Consensus Recommendations**

RW-XXV-B-02                      The Coho Recovery Team recommends that counties, cities, and landowners within the SONCC ESU establish and implement riparian setbacks according to the following criteria:

- a.        Solid-line streams are main tributaries requiring either a 100-foot minimum buffer that includes the riparian vegetation or the riparian vegetation plus 50 feet, whichever is greater.
- b.        Dotted-line streams are secondary tributaries requiring either a 50-foot minimum buffer that includes the riparian vegetation or the riparian vegetation plus 25 feet, whichever is greater.

If development restrictions related to mandatory requirements do not allow a project to completely avoid the area of the buffer zone outside the riparian vegetation, the project proponent may average the setback distance along the riparian habitat for the length of the project. Enforce policies with ordinances. (Yes=16; No=3; Abstain=0)

*Alternate language: The Recovery Team recommends that counties, cities, and landowners within the SONCC ESU establish and implement riparian setbacks on any development or new construction where it is determined that such setbacks are necessary to protect coho salmon. If development restrictions related to mandatory requirements do not allow a project to completely avoid the area of a riparian setback outside of the riparian vegetation, the project proponent may average the setback distance along the riparian habitat for the length of the project.*

RW-XXV-B-03                      The Coho Recovery Team encourages counties to revise General Plans, Local Coastal Plans, and/or Community Development Plans where necessary, to direct development away from riparian habitats on coho salmon streams or tributaries. Establish incentives and standards to protect riparian and wetlands areas on private lands, based on flexible subdivision design and other cooperative land development mechanisms. (Yes=17; No=0; Abstain=2)

RW-XXV-B-06                      The Coho Recovery Team recommends that within the CCC ESU counties, cities, and landowners develop and implement initiatives to expand inadequate streamside protections. Include setbacks for development, restrictions on

grading activities and setbacks for septic system development. Enforce policies with ordinances. (Yes=16; No=2; Abstain=1)

*Alternate language: The Recovery Team recommends that within the CCC ESU counties, cities, and landowners evaluate the adequacy of riparian buffers on any new development or construction where it is determined that such setbacks are necessary to protect coho salmon. Increase the buffer zone where needed for protecting riparian and wetland habitat on county, city, and private lands adjacent to coho salmon streams.*

RW-XXV-B-07: Develop and implement county, city, and landowner initiatives to expand inadequate stream buffers and protect riparian and wetland habitat for coho salmon recovery. (Yes = 11; No = 0; Abstain = 1)

RW-XXV-C-01 Acquire conservation easements or land in fee title from willing landowners to protect coho salmon habitat. (Yes=16; No=2; Abstain=1)

*Alternate language: Support purchase of conservation easement from willing sellers, which would protect coho salmon habitat and keep lands in active agricultural and forestry production and ownership.*

## **4.16 Public Outreach**

### **4.16.1 Consensus Recommendations**

RW-XXVIII-A-03 The Department and the Commission will set up a periodic recognition program for watershed groups and stakeholders that are helping to implement the coho recovery strategy.

RW-XXVIII-B-01 Recommend that DFG support local governments, interested parties, and property owners in the development of incentives for landowners who participate in activities that exceed legal requirements or timelines to protect and/or restore coho salmon habitat and watershed processes.

RW-XXVIII-B-03: Educate local governments to incorporate protection of coho salmon in flood management activities consistent with Department, USACE, and/or RWQCB requirements.

RW-XXVIII-B-04: Educate staff of counties and incorporated areas about the importance and requirements of developing and implementing performance standards in Stormwater Management Plans.

RW-XXVIII-B-05: DFG and other agencies should provide educational materials, outreach and training for issues such as sport fishing (inadvertent incidental take), poaching (directed take) and habitat destruction (LWD removal, riparian destruction, illegal stream crossings, pollution, illegal water withdrawal, etc.).

#### **4.16.2 Non Consensus Recommendations**

There are no non consensus recommendations on Public Outreach.

### **4.17 Integration With Other Plans and Programs**

#### **4.17.1 California Department of Forestry and Fire Protection and California Board of Forestry**

##### **4.17.1 Consensus Recommendations**

RW-XXX-A-03: Recommend that CDF use modeling as one of its tools to analyze land failure and sediment yield to determine what protective measures are needed in geologically unstable areas.

RW-XXX-A-04: Conduct implementation and effectiveness monitoring for Nonindustrial Timber Management Plans.

RW-XXX-D-01 The Recovery Team recommends implementation of Fire Safe Councils' recommendations promoting the reduction of fuel near residences to reduce human-caused fires spreading into the forest and causing harm to coho salmon habitat.

RW-XXX-D-03: Encourage agencies and stakeholders to work together on a long-term basis to incorporate coho salmon recovery considerations in fire and fuel management strategies.

RW-XXX-D-04: Establish fire regimes to promote watershed function and health and to reduce the risk and impact of extensive, high severity fire on coho salmon and habitat.

RW-XXX-D-05: Identify areas within coho salmon range that are susceptible to extensive, high severity fires.

RW-XXX-D-07: Restore aquatic habitat structure and life history complexity of coho salmon populations in areas susceptible to extensive, high severity fires.

##### **4.17.1.2 Non Consensus Recommendations**

RW-XXX-A-01: The California Board of Forestry should adopt permanently the Threatened and Impaired Watersheds rules (Yes = 11; No = 4; Abstain = 1)

RW-XXX-A-02: Recommend that the California Board of Forestry amend the Forest Practice Rules to require the participation of a registered geologist in the

preparation and review of timber harvest plans when necessary. (Yes = 12; No = 3; Abstain = 1).

RW-XXX-D-06: Identify state of perturbation (= disturbance regime) in watersheds within the coho salmon range to determine potential, deleterious shifts from ecological functioning regimes. (Yes – 13; No = 0; Abstain = 1)

#### **4.17.2 California Regional Water Quality Control Boards (TMDL Program)**

##### **4.17.2.2 Consensus Recommendations**

RW-XXX-B-02 Request that RWQCBs consider necessary restoration projects within the sediment allocation in the implementation of basin plans or the TMDL process.

RW-XXX-B-05 DFG should continue participation in the TMDL process to ensure the standards provide protection of coho salmon.

##### **4.17.2.2 Non Consensus Recommendations**

RW-XXX-B-01 DFG propose a preferred TMDL schedule and encourage RWQCBs to prepare and implement TMDL plans for key coho salmon watersheds according to this schedule. (Yes=10; No=6; Abstain=2)

*Alternate language: For those TMDLS where the impaired beneficial use of water is freshwater habitat for coho salmon, DFG is encourage to assist the RWQCBs to prepare TMDLS in a manner that is timely and consistent with the approved Coho Recovery Strategy.*

RW-XXX-B-03 RWQCBs should coordinate with DFG, landowners, and interested parties to develop and implement sediment reduction and water quality improvement plans and meet and expedite the Clean Water Act (TMDL) requirements through technical assistance and incentives to landowners, making watersheds with coho salmon the highest priority for assistance. (Yes=14; No=0; Abstain=4)

*Alternate language: RWQCBs are encouraged to coordinate with DFG, landowners and interested parties to develop and implement sediment reduction and water quality improvement plans for those waterbodies where the impaired beneficial use of water is freshwater habitat for coho salmon. The RWQCBs are also encouraged to expedite the implementation schedule for such TMDLS by providing technical assistance and incentives to landowners.*

RW-XXX-B-06 Request that EPA and RWQCBs conduct outreach to DFG, other state agencies, and local government entities to participate in the TMDL process to ensure the standards provide protection of coho salmon. (Yes=15; No=2; Abstain=1)

### **4.17.3 California Coastal Commission**

#### **4.17.3.1 Consensus Recommendations**

There are no consensus recommendations for Implementation – California Coastal Commission.

#### **4.17.3.2 Non Consensus Recommendation**

RW-XXX-C-01: Request that the Coastal Commission require landowners to fund restoration of impacted coho salmon habitat resulting from project construction without proper review and approvals. (Yes = 12; No = 1; Abstain = 0).

### **4.17.4 US Army Corps of Engineers**

#### **4.17.4.1 Consensus Recommendation**

RW-XXX-F-01: Encourage NOAA Fisheries to work with USACE to reduce the impacts to coho salmon of USACE projects.

#### **4.17.4.2 Non Consensus Recommendations**

There are no non consensus recommendations for Implementation—US Army Corps of Engineers.

### **4.17.5 Counties**

#### **4.17.5.1 Consensus Recommendations**

RW-XXX-E-01 The Coho Recovery Team recommends that counties should continue to implement FishNet 4C and Five County Salmon Restoration goals, including adopting and implementing written Operations and Maintenance Guidelines, training staff on guidelines, addressing fish passage and road sedimentation issues, developing riparian protections, promoting alternatives to conventional bank stabilization, and developing land use policies favorable for coho salmon. (FishNet 4C counties: Sonoma, Marin, San Mateo, Santa Cruz, and Russian River portion of Mendocino; Five Counties: Del Norte, Siskiyou, Trinity, Humboldt, and Mendocino)

RW-XXX-E-02 Incorporate the FishNet 4C and Five County adopted Roads Operations and Maintenance Guidelines with incidental take authorizations under CESA and as part of the Coho Recovery Plan.

RW-XXX-J-01 Recommend that after delisting is achieved, the Recovery Team and the Department review the recovery strategy to determine how to continue implementation of appropriate elements of the recovery strategy, pursuant to and

consistent with other applicable local, state, and federal law and voluntary measures, to achieve restoration of tribal, recreational, and commercial fisheries and avoid relisting of the species.

#### **4.17.5.2 Non Consensus Recommendations**

There are no non consensus recommendations for Implementation-Counties.

### **4.18 Permitting**

#### **4.18.1 Consensus Recommendations**

RW-XXXI-A-06: Encourage the Department of Fish and Game to develop and issue management memoranda of understanding under Section 2081(a) to participants as an incentive for scientific, educational, or management purposes that will contribute to the recovery of coho salmon.

RW-XXXI-A-09: Review and modify the Department's current Regional General Permit from the USACE to allow the earliest possible beginning of restoration activities.

RW-XXXI-A-11: Support adequate staffing and funding for the Department to process agreements, permits, and contracts for all restoration projects in a timely manner (including review, site visits, etc.).

RW-XXXI-A-12: Support the proposed Categorical Exemption for Small Restoration Projects from CEQA. Support the proposed changes to CEQA Guidelines Section 15065 regarding mandatory findings of significance to accomplish this purpose.

RW-XXXI-A-13: Create a new Categorical Exemption for barrier removals that meet the DFG/NOAA Fisheries natural stream simulation criteria for passage. Meeting these guidelines adds 50-80% to project costs and creates a long-term restoration benefit not only for coho salmon but many/most aquatic species and even large mammals such as deer/elk (West Weaver, Merrill creeks, for example).

RW-XXXI-B-02: Encourage state, federal, and local government agencies to place greater emphasis on coordinating: (1) the permitting process (including environmental review) while ensuring protection of coho salmon and their habitat; and (2) implementation of programs affecting coho salmon.

RW-XXXI-B-03: Encourage state, federal, and local governmental agencies to work with stakeholders in identifying ways to remove regulatory barriers (e.g., permitting and environmental review) to expedite activities that will contribute to the recovery of coho salmon. Examples of ideas to consider may be:

- a. The creation of local permit assistance centers;
- b. Seeking categorical exemption from CEQA; and
- c. Seeking a certified regulatory program under CEQA for certain activities.

RW-XXXI-B-04: Encourage the Department of Fish and Game, NOAA Fisheries, U.S. Fish and Wildlife Service, and the U.S. Army Corps of Engineers to coordinate and develop programmatic incidental take authorizations (e.g., 404 permits, Section 7 consultations, 4(d) rules) for activities that will contribute to the recovery of coho salmon, including but not limited to the Department's Fisheries Restoration Grants Program.

RW-Unnumbered (III1.): Support continued and increased funding for the California Conservation Corps to implement coho salmon restoration projects.

#### **4.18.2 Non Consensus Recommendations**

RW-XXXI-A-01 Recommend that DFG work with NOAA Fisheries and other interested parties to develop regulatory assurance mechanisms to encourage land managers, local governments, and landowners to implement coho salmon habitat enhancement projects. (Yes=18; No=0; Abstain=1)

RW-XXXI-A-02 DFG coordinate with the State Water Resources Board and appropriate regional water boards to implement water quality monitoring and streamline permitting of coho habitat restoration projects (RWQCB 401, USACE 404, NOAA Fisheries, and USFWS permitting). (Yes=18; No=0; Abstain=1)

RW-XXXI-A-05: Support the Department in seeking new funding to pay for environmental review and permitting of voluntary restoration projects that will contribute to the recovery of coho salmon. (Yes=17; No=0; Abstain=2)

RW-XXXI-A-08: Encourage agencies to place a high priority on expediting issuance of permits for coho salmon habitat restoration and/or enhancement activities. (Yes = 10; No = 5; Abstain = 0)

RW-XXXI-A-10: Amend grading ordinances to exempt restoration and/or enhancement activities within certain categories (specified by the county or others). (Yes = 11; No = 0; Abstain = 2)

RW-XXXI-B-01: Require the implementation of pre-project geological surveys where needed to ascertain land suitability on roads and rural residential development. Counties to develop permit conditions to limit activities within unstable areas and identify mitigation measures for restoration and enhancement. (Yes = 9; No = 1; Abstain = 3).

RW-XXXI-B-07: Endorse the Task Force on Removing Barriers to Restoration (Resources Agency) recommendation suggesting counties adopt ordinances to exempt coho salmon habitat restoration and/or enhancement projects from indemnification requirements so long as it does not expose the State to liability. (Yes = 11; No = 0; Abstain = 4)

#### **4.19 Watershed Planning**

##### **4.19.1 Consensus Recommendation**

RW-XXXII-B-03: Review existing, approved watershed management or restoration plans within the range of coho salmon and implement actions resulting from those watershed plans that are consistent with priority recommendations of the coho salmon recovery strategy.

##### **4.19.2 Non Consensus Recommendations**

RW-XXXII-B-02 Provide adequate funding to the agencies to coordinate and support preparation of comprehensive watershed assessments and restoration plans that:

- a. Include a professional fisheries scientist (one who is certified by the American Fisheries Society or the equivalent);
- b. Assess stream flow, water diversions, water quality, sediment sources, fish barriers, riparian corridors, in-stream habitat, estuarine habitat, and land use as necessary; and
- c. Identify, prioritize, and implement site-specific restoration projects to benefit coho salmon. (Yes=16; No=0; Abstain=3)

#### **4.20 Enforcement of Existing Laws**

##### **4.20.1 Consensus Recommendations**

RW XXXIII-A-08 The Coho Recovery Team recommends that DFG examine penalty schedules and, if necessary, explore ways to adjust penalty schedules to reflect the impact of violations to coho salmon, taking into account other penalties that may be enforced in association with the same activity.

RW-XXXIII-A-14: Support funding for increased enforcement of existing laws against dumping of toxic substances.

RW-XXXIII-A-18: Require adequate review of all applications for proposed projects that may impact coho salmon.

#### **4.20.2 Non Consensus Recommendations**

RW-XXXIII-A-01            The Coho Recovery Team supports full enforcement of existing laws, codes, regulations, and ordinances that address the protection of coho salmon and their habitat. These include, but are not limited to: Fish and Game Code Sections 1600, 5650, 5900 through 6100 (with an emphasis on 5901, 5937, and 6100), Public Resources Code Sections 10000-10005, the California Endangered Species Act, and the Federal Endangered Species Act. The term “enforcement” includes, but is not limited to, education, issuing warnings, issuing citations, developing cases for referral to district attorneys offices and/or the Office of the Attorney General. (Yes=16; No=0; Abstain=3)

RW-XXXIII-A-02            The Coho Recovery Team supports adequate budgetary funding and positions for agencies with enforcement authority (e.g., DFG, SWRCB, RWQCBs, NOAA Fisheries, cities, counties) to enforce laws and codes relevant to coho salmon protection. (Yes=16; No=0; Abstain=3)

RW-XXXIII-A-03            The Coho Recovery Team recommends DFG take the lead in reviewing diversions and use of water in priority coho salmon streams to determine which permits and/or licenses need modification for the protection of coho salmon. This program must be adequately funded to be implemented. DFG should reevaluate the projects and formally request that the SWRCB recondition permits/licenses for protection of coho salmon. This may require DFG to file complaints, develop supportive evidence, and make formal presentations during formal hearings before the SWRCB. DFG should request assistance from the SWRCB and Regional Boards to collect this information and assist in the development of evidence. DFG should be prepared to follow through with their findings by formally requesting the SWRCB to modify and/or change the terms and conditions of a specific permit/license for the protection of coho salmon. The Recovery Team requests that SWRCB adopt and enforce permit and license conditions recommended by the Department. (Yes=16; No=0; Abstain=3)

RW-XXXIII-A-04            The state agencies with the primary authority for fish and water (DFG, SWRCB) should lead enforcement efforts and coordinate with all local, state, and federal agencies with regulatory authority affecting coho salmon. (Yes=16; No=0; Abstain=3)

RW-XXXIII-A-05            The Coho Recovery Team recommends that DFG and the Fish and Game Commission:

- a.     Direct the SWRCB to make enforcement of unauthorized diversion and use of water and water permit processing a high priority. Enforcement of existing codes including Water Code §§ 1052 Trespass and 1831 et. seq., Cease and Desist; and

- b. Recommend to the Governor and the Legislature that adequate funding be provided for enforcement and permit processing staff. (Yes=16; No=0; Abstain=3)

RW-XXXIII-A-06            The Coho Recovery Team supports continued funding for the California District Attorney's Association's Environmental Circuit Prosecutors program and/or Environmental Project for applicable district attorney offices in the range of coho salmon. (Yes=15; No=1; Abstain=2)

RW-XXXIII-A-07            The Coho Recovery Team recommends DFG work with county fish and game commissions, the California District Attorney's Association's Environmental Circuit Prosecutors program and/or Environmental Project, and applicable district attorney offices to dedicate fines from violations affecting coho or coho habitat to coho recovery and restoration activities consistent with DFG's Coho Recovery Strategy, including but not limited to education and outreach. Emphasis should be placed on keeping fine money in watersheds where the violation occurred to address existing coho restoration plans and projects. (Yes=14; No=1; Abstain=4)

RW-XXXIII-A-10            The Coho Recovery Team recommends DFG develop an outreach/information and education program that targets agency personnel, judges, district attorneys, the Attorney General's Office, municipalities, watershed groups, agricultural groups, developers, and other affected or interested parties concerning the status of coho and the value and importance of coho resources and coho recovery. DFG and other agencies should provide educational materials, outreach and training for issues such as sport fishing (inadvertent incidental take), poaching (directed take) and habitat destruction (LWD removal, riparian destruction, illegal stream crossings, pollution, illegal water withdrawal, etc.). (Yes=18; No=1; Abstain=0)

RW-XXXIII-A-11            The Coho Recovery Team recommends DFG work with cities and counties to discourage illegal dumping, poaching, and other illegal activities by promoting "neighborhood watch" programs for streams and/or watersheds. (Yes=18; No=0; Abstain=1)

RW-XXXIII-A-15            The Coho Recovery Team recommends that a separate section on the Recovery Strategy deal with enforcement of existing laws, codes, and regulations. (Yes=18; No=0; Abstain=1)

RW-XXXIII-A-22            Human and financial resources as well as political will limit the ability to enforce existing laws. Until such time as there are adequate resources to meet all required mandates the responsible local, state and federal agencies will develop and implement their respective prioritized sets of actions to implement existing laws. (Yes=12; No=3; Abstain=4)

RW-XXXIII-A-27            The Coho Recovery Team supports agency environmental task forces made up of state, local, and federal enforcement agencies that operate in the range of coho salmon. (Yes=15; No=0; Abstain=4)

RW-XXXIII-A-28                      The Coho Recovery Team supports continued and increased funding for DFG's Cal Tip program. (Yes=18; No=0; Abstain=1)

#### **4.21    Implementation (Including Funding)**

##### **4.21.1 Consensus Recommendation**

RW-XXXIV-A-01                      Funding and incentives should be provided for any projects that exceed requirements of existing law and/or expedite timelines required by law. All commitments of state and local agencies are subject to availability of funding. Funding and incentives provided by state fishery restoration accounts should be prioritized as follows:

1. Projects that exceed requirements of existing law and/or expedite timelines required by current law.
2. Projects that were installed in accordance with laws and standards in effect at the time the work was done.
3. Projects that contain elements of 1 and 2 above.
4. Projects that do not meet elements of 1 and 2 above, but which are not a part of new development or under enforcement actions.
5. Projects that are mitigation for new development or activities under enforcement actions are not fundable.

##### **4.21.2 Non Consensus Recommendation**

RW-XXXIV-D-01:                      Give preference to employing displaced fishing and timber workers for monitoring and restoration jobs. (Yes = 10; No = 0; Abstain = 5)

#### **4.23    Assessment, Monitoring, and Research**

##### **4.23.1 Consensus Recommendations**

RW-XXIX-B-03:                      Support research necessary to better understand crucial uncertainties regarding coho salmon ecology. Four important issues are:

- a. Genetic relatedness and health;
- b. Potential of local adaptive differences to environmental factors; and
- c. Identifying specific refugia, including non-natal rearing areas.
- d. Stream nutrient enrichment and cycling needs for coho salmon.

RW-XXIX-C-01:                      Evaluate and prioritize coho salmon issues and questions in need of research.

RW-XXIX-C-01a: Develop and maintain a coho salmon species and recovery data/information system for compiling, analyzing, and distributing information on the status and trend of coho salmon and the status of coho salmon recovery.

RW-XXIX-D-01: The CRT recognizes that the Department has authority to collect data on navigable waterways. In addition, the CRT recommends that Department develop a data collection and sharing policy that:

- a. Requires permission of private landowners for access across private lands to collect data where such access is desired;
- b. Disclosure of data collected from private lands in a form or by a means that protects landowner privacy (i.e., disclosure of data at stream-reach level or other appropriate scale that protects landowner privacy, but also shows the relationship to the nearest tributary confluences);
- c. Disclosed data must be quality assured and quality controlled;
- d. Disclosure should include metadata files indicating who collected the data, and how and for what purposes the data were collected;
- e. If requested, disclosed data should be in electronic form if it already exists in that form; and
- f. Data requests should be responded to in a timely manner, recognizing limitations of staff and budgets can affect processing requests.

RW-XXIX-E-01: Coho salmon restoration activities should consistently use field tested implementation, effectiveness, and validation monitoring protocols.

RW-XXIX-F-01: Support immediately needed assessments necessary to better understand population and life-history uncertainties, such as:

- a. Relative abundance,
- b. Spawning sites/success,
- c. Estuary use,
- d. Barriers to juveniles, and
- e. Over-wintering growth and survival.

RW-XXIX-G-01: Coho salmon recovery shall be guided by the strategic, long-term monitoring program being developed as a California coastal salmonid assessment and monitoring program.

RW-XXIX-G-02: Assessment and prioritization of actions within a watershed should precede implementation of comprehensive restoration plans in a sub basin or basin to ascertain the most crucial factors for coho salmon and habitat. This should not preclude prompt implementation of specific, obvious beneficial projects or measures already recommended in the Recovery Strategy.

#### **4.23.1 Non Consensus Recommendations**

RW-XXIII-A-01: Support monitoring and research to better understand requirements and use of estuaries by coho salmon. (Yes = 14; No = 0; Abstain = 1)

RW-XXIX-B-01: Investigate stream nutrient enrichment and cycling needs for coho salmon. (Yes = 10; No = 1; Abstain = 3)

RW-XXIX-H-01: Support the expenditure of restoration dollars, including Fisheries Grant Restoration funding, to research, monitor, and evaluate the effectiveness of restoration. This may require amending the Public Resources Code to allow research as an eligible project type. (Yes = 14; No = 1; Abstain = 0)

#### **4.24 Timber Issues**

A working group of the CRT gave considerable attention to one issue that affects its recommendations on a number of range wide categories—the future management of timber harvests. The CRT working group was composed of members representing petitioners for the listing of coho salmon, industrial timber, small timber and CDF met over a period of three months to consider the intersection of timber operations and coho habitat needs. While there were a number of points of agreement among the members of the working group, in the end, landowners and the CDF representative proposed a set of comprehensive recommendations based on adaptive management principles and the former petitioners proposed a menu of choices for consideration by the CRT and the Director, including: two different approaches aimed at riparian conditions; a set of recommendations on control of sediment sources from timber operations; and a set of recommendations that addressed some of the same points as were addressed by the landowners. The CRT voted on all sets of recommendations. Each set of recommendations was voted upon as a set. All sets of recommendations received a majority of votes and none received a consensus vote.

While the components of each of the proposals will fit under various topical headings within the Recovery Strategy, each set of recommendations is shown here so that the Director and the Commission may better understand the overall impact of each.

##### **4.24.1 Petitioners' Proposal on Control of Sediment From Timber Operations (Yes = 11; No = 3; Abstain = 2)**

XXXVI-A-01 Roads, skid trails, and landings will not be allowed on potentially unstable areas within a timber harvest plan or on areas outside the harvest area where construction is necessary to access and implement a timber harvest plan. Any exception to this prohibition must be necessary in order to provide less risk to coho salmon.

XXXVI-A-02 The risk represented by timber harvest operations on any potential unstable are will be estimated by modeling or by a registered professional engineering

geologist. Particular attention will be paid to risks inherent in inner gorges, headwall swales, and debris torrent tracks.

XXXVI-A-03            Water will not be diverted onto potential unstable areas through roads, timber harvest operations, or other activities.

XXXVI-A-04            Partial tree retention standards will be applied to any potential unstable areas where such standards are considered necessary to maintain soil stability. (A basal area standard and prevention of even-aged management may be a means to accomplish this goal. FPR 913.2(a) may serve as a partial model as a means to implement this goal.)

XXXVI-A-05            Monitoring will be implemented to ascertain that the standards outlined above are effectively limiting landslides that are caused by timber operations. The harvest completion report and hillside monitoring program could provide the basis for ascertaining that the above measures are being implemented. Periodic air photo interpretation, supplemented with on-the-ground investigation where indicated, could be used to ascertain the long-term effectiveness of the above measures as landslides are often triggered by large storms and/or earthquakes that do not regularly occur. Any monitoring program will be based upon scientific principles. Any monitoring program should provide for the involvement of the general public. Information collected for or developed through the monitoring program shall be aggregated in such a way as to provide anonymity for individual landowners. A member of the Coho Recovery Team will be involved with the design of the monitoring system and the review and evaluations of the effectiveness of the program.

XXXVI-A-06            Existing landslides should be considered for remedial work to lessen sedimentation of streams. Particular attention should be paid to the potential for remediation where landslides are immediately adjacent to or protruding into streams.

**4.24.2        Original DFG/Petitioners' Resolution** (Yes = 11; No = 5; Abstain = 0)

XXXVI-B-##            Incidental take of coho salmon is authorized for otherwise lawful timber operations if they fully incorporate the following measures:

XXXVI-B-1            Within the watercourse and lake protection zone (WLPZ) for Class I waters, the minimum WLPZ width shall be 150 feet from the watercourse or lake transition line as defined in 14 CCR 895.1 of the 2002 Forest Practice Rules. At least 85% overstory canopy shall be retained within 100 feet of the watercourse or lake transition line, and at least 65% overstory canopy within the remainder of the WLPZ. The overstory canopy shall be composed of at least 25% overstory conifer canopy post-harvest.

While attaining the canopy retention standards described in section 2.a.(1), recruitment of large woody debris to Class I watercourses shall be ensured by retaining the ten largest

diameter conifers (live or dead), on each side of the watercourse, per 330 feet of stream channel length, within 50 feet of the watercourse or lake transition line.

XXXVI-D-1 All new crossings shall either span the Class I watercourse or use an arched culvert with a natural bottom. All permanent watercourse crossings that are constructed or reconstructed shall accommodate the estimated 100-year flood flow, including debris and sediment loads.

XXXVI-A-10 Where an inner gorge extends beyond a Class I WLPZ and slopes are greater than 55%, a special management zone shall be established beyond the WLPZ where the use of even aged regeneration methods is prohibited. This zone shall extend upslope to the first major break in slope (i.e., where the slope is less than 55% for a distance of 100 feet or more), or 300 feet as measured from the watercourse or lake transition line, whichever is less. Within this zone, methods and retention standards shall be as described in 14 CCR 913.2, 933.2, and 953.2.

XXXVI-B-2 For Class II watercourses, at least 85% overstory canopy shall be retained within 50 feet of the watercourse or lake transition line. In an additional outer zone, overstory canopy closure shall be at least 65%. The overstory canopy in each zone shall be composed of at least 25% overstory conifer canopy post-harvest. The outer zone shall be 25 feet in width where side slope class is less than 30%. The outer zone shall be 50 feet in width where side slope class is 30-50%. The outer zone shall be 75 feet in width where the slope class is greater than 50%.

While attaining the canopy retention standards described in section 2.a.(5), recruitment of large woody debris to Class II watercourses shall be ensured by retaining the five largest conifers (live or dead) on each side of the watercourse per 330 feet of stream channel length, within 50 feet of the watercourse or lake transition line.

XXXVI-A-11 Where an inner gorge extends beyond a Class II WLPZ and slopes are greater than 55%, a special management zone shall be established beyond the WLPZ where the use of even aged regeneration methods is prohibited. This zone shall extend upslope to the first major break in slope (i.e., where the slope is less than 55% for a distance of 100 feet or more) or 200 feet as measured from the watercourse of lake transition line, whichever is less. Within this zone, methods and retention standards shall be as described in 14 CCR 913.2, 933.2, and 953.2

XXXVI-D-2 All permanent Class II watercourse crossings that are constructed or reconstructed shall accommodate the estimated 100-year flood flow, including debris and sediment loads and be placed in the bottom of the natural channel and capable of capturing low flows.

XXXVI-B-3 For Class III waters, at least a 25-foot protection zone on each side of the watercourse for slopes less than 30% and at least a 50-foot protection zone on each side of the watercourse for slopes greater than 30%. Retain all trees situated within the channel zone (i.e., bank-full channel) and trees that have boles that overlap the edge of

the bank-full channel. Within the protection zones at least 50% of the understory vegetation shall be left post-harvest in an evenly distributed condition. All regeneration conifers, snags, large woody debris (LWD), and hardwoods shall be retained within the Class III protection zones except removal as necessary for yarding and crossings. Commercial timber operations will be allowed to “yard through” a Class III riparian management zone. Burning for purposes of site preparation shall not be initiated in the protection zones.

XXXVI-D-3 All permanent Class III watercourse crossings that are constructed or reconstructed shall accommodate the estimated 100-year flood flow, including debris and sediment loads and be placed in the bottom of the natural channel and capable of capturing low flows.

XXXVI-A-07 Use of any unpaved road segments within or appurtenant to a timber harvest plan area shall cease when any of the following occur:  
(a) precipitation is sufficient to generate overland flow off the road surface; or (b) use of any portion of the road results in rutting of the road surface. Road use shall not resume until the road is dry. “Dry” is defined as a road surface that is well drained; and is not rutting, discharging fine sediments, or causing a visible turbidity increase in a ditch or on a road surface that drains into a Class I, II, or III watercourse. Access for road inspection and access to correct emergency road related problems or to respond to human emergency situations shall be allowed at any time by a vehicle rated one ton or less.

XXXVI-A-08 While participating in THP pre-harvest inspections the Department shall place a high priority on appropriate classification of all Class I, II, and III watercourses and identification and remediation of road-related sources of sediment likely to recruit into watercourses.

XXXVI-E-2 The Department shall prioritize staff resources to review and process section 1601 or 1603 Lake or Streambed Alteration Agreements to ensure that no proposed streambed crossing or alteration activity may have a substantial impact on coho salmon or habitat upon which coho salmon depend goes unreviewed. Agreements shall provide for necessary fish passage/bypass flows and erosion prevention. All mitigation measure identified within the Streambed Alteration Agreement as necessary to protect coho salmon or the species’ habitat within the bed, bank, or channel shall be fully implemented by the permittee undertaking the activity. The Department shall prioritize staff resources to ensure enforcement of the terms and conditions of any 1601 or 1603 permit.

Does this apply only to ITPs for timber – it doesn’t sound like it?

#### **4.24.3 Petitioners’ Proposal for Comprehensive Revisions of Forest Practice Measures (Yes = 10; No = 5; Abstain = 1)**

XXXVI-B-## The Department provides the following terms and conditions for timber operations and related forestry activities in California. The terms and conditions below are generic and shall apply to all timber operations conducted during the period in

which coho salmon are a threatened or endangered species under the California Endangered Species Act (CESA). Timber operations include, but are not limited to:

1. Approved Timber Harvesting Plans (THPs);
2. Non-Industrial Timber Management Plants (NTMPs);
3. Exemption; and
4. Emergency timber operations.

The Department does not conclude at this time that the terms and conditions are adequate to prevent take, as defined by CESA, of coho salmon.

The terms and conditions shall apply to all forested areas in California subject to the California Forest Practice Rules (FPR), Title 14, California Code of Regulations, within the range of coho salmon (*Oncorhynchus kisutch*). The Department may, at its discretion, consider site-specific alternative terms and conditions submitted by individuals proposing forestry activities. Consideration of alternative terms and conditions shall be subject to the availability of staff, information, data, and specific analyses. Consideration by the Department of site-specific variations from the terms and conditions that achieve equal or greater coho protection shall not be subject to a specified review period. The revised final rule language for Protection of Threatened and Impaired Watersheds 2000 shall apply to watersheds within the range of coho salmon in California at least as long as the terms and conditions are in effect.

XXXVI-B-0 Watercourse and Lake Protection Zones (WLPZs) shall be designated for all Class I, Class II, and Class III watercourses within watersheds containing existing or restorable coho salmon habitat. The size of the WLPZs, and the activities allowed within, vary with watercourse classification.

XXXV-B-10 All fish bearing (or restorable) Class I waters will have a WLPZ. Except for watercourses designated as Class I only because they are sources of domestic water, the WLPZ for Class I waters is divided into two bands, the No-Harvest Band and the Outer Band. The bands are measured in slope distance from 0 feet to 100 feet, and 100 feet to 150 or 170 feet depending on timber site classification, from the watercourse transition line, as defined by the FPRs (14 CCR 895.1) or outer edge of the channel migration zone (CMZ). The CMZ is defined as the area adjacent to the watercourse constructed by the watercourse in the present climate and inundated during periods of high flow. The CMZ boundary generally corresponds to the modern floodplain, but may also include terraces that are subject to significant bank erosion. The floodplain is delineated by either the flood-prone area or the 100-year floodplain, whichever is greater.

Terms and Conditions for the Entire Class I WLPZ

1. The WLPZ measures at least 170 feet for timber site class I and II, and at least 150 feet for timber site class III, IV, and V (slope distance) from the watercourse transition line or the outer CMZ edge (if a CMZ is present) on

each side of the watercourse. Willows shall not be considered permanent vegetation for the purpose of determining the watercourse transition line.

2. No sanitation salvage, exemption harvest, or emergency timber operations (as defined and allowed in the FPRs) shall occur in the WLPZ.
3. All portions of down wood (i.e., LWD), except as defined as slash in the FPRs, will be retained.
4. Trees felled during current harvesting operations and approved road construction are not considered down wood for purposes of retention.
5. Felled hazard trees or snags are considered down wood and are to be retained in the WLPZ.
6. Trees that fall naturally onto roads, landings, or harvest units within the WLPZ are considered down wood and are to be retained in the WLPZ.
7. All non-hazard snags in the WLPZ will be retained.
8. The WLPZ is an equipment exclusion zone (EEZ) for timber operations, except for roads and permitted equipment crossings.
9. No harvest, including sanitation salvage, exemption harvest, or emergency timber operations, shall occur in the No Harvest Band.
10. Road segments within the first 30 feet of the No Harvest Band must be mitigated by extending the No Harvest Band on the opposite side of the waters from the existing road an equivalent distance of that portion of the road prism within the No Harvest Band. If the Class I watercourse marks the property or harvest area boundary line, the WLPZ on the same side as the road shall be extended in the same manner. In the case of WLPZ road crossings, the first 50 feet of road extending inland from the watercourse transition line is exempt from this mitigation.

Terms and Conditions for the Class I Outer Band, 100 feet to at least 170 feet (timber classes I and II) or 100 feet to at least 150 feet (timber site classes III, IV, and V).

1. Only single-tree selection will occur within the Outer Band.
2. Post-harvest, at least 85% overstory canopy shall be retained.
3. Post-harvest, at least 85% overstory canopy shall be retained.
4. No harvest on slopes equal to or exceeding 55%.

5. No more than 40 percent of the conifer basal area may be harvested.
6. For all slopes 50% and greater leading away from the WLPZ, the WLPZ Outer Band prescriptions, at a minimum, shall be extended upslope to the break in slope (defined as a slope <50% for a distance of more than 100 feet) or upslope to a slope distance of 400 feet, whichever is less, measured from the watercourse transition line or the outer edge of the CMZ.

XXXV-B-11 All non-fish bearing Class II waters will have a Watercourse and Lake Protection Zone (WLPZ). The WLPZ for Class II waters is divided into two bands, the No-Harvest Band and the Outer Band. The bands are measured in slope distance from 0 to 30 feet, and 30 feet to at least 100 or at least 130 feet, depending on timber site classification, from the watercourse transition line or the outer CMZ edge (if a CMZ is present).

#### Terms and Conditions for the entire Class II WLPZ

1. The WLPZ is at least 130 feet (slope distance) for timber site class I and II, and at least 100 feet for timber site class III, IV, and V from the watercourse transition line or the outer CMZ edge (if a CMZ is present) on each side of the waters. Willows shall not be considered permanent vegetation for the purpose of determining the watercourse transition line.
2. No sanitation salvage, exemption harvest, or emergency timber operations (as defined and allowed in the FPRs) shall occur in the WLPZ.
3. All portions of down wood (i.e., LWD), except as defined as slash in the FPRs, will be retained.
4. Felled hazard trees or snags not associated with a THP, NTMP, exemption, or emergency are considered down wood and are to be retained in the WLPZ.
5. Trees that fall naturally onto roads, landings, or harvest units within the WLPZ are considered down wood and are to be retained in the WLPZ.
6. All non-hazard snags will be retained.
7. The WLPZ is an equipment exclusion zone (EEZ) for timber operations, except for roads and permitted equipment crossings.
8. If any area within the WLPZ, including the 50% steep slope provision band and the sediment filtration band, falls within the boundary of a mass wasting area of concern, then the mass wasting strategy applies for that area.

#### Terms and Conditions for the Class II No Harvest Band, 0 feet to 30 feet

2. No harvest, including sanitation salvage, exemption harvest, or emergency timber operations, shall occur in the No Harvest Band.
3. Road segments within the No Harvest Band must be mitigated by extending the No Harvest Band on the opposite side of the waters from the existing road an equivalent distance of that portion of the road prism within the No Harvest Band. If the Class II watercourse marks the property or harvest area boundary line, the WLPZ on the same side as the road shall be extended in the same manner. In the case of WLPZ road crossings, the first 50 feet of road extending inland from the watercourse transition line is exempt from this mitigation.

Terms and Conditions for the Class II Outer Band, 30 feet to at least 130 feet (timber site classes I and II) or 30 feet to at least 100 feet (timber site classes II, IV, and V).

1. Only single-tree selection will occur within the Outer Band.
2. Post-harvest, at least 85% overstory canopy shall be retained from 30 feet to at least 100 feet, and at least 65% overstory shall be retained from at least 100 feet to the outer WLPZ boundary.
3. No harvest on slopes equal to or exceeding 55%.
4. No more than 40 percent of the conifer basal area may be harvested in a single entry. Post harvest, the diameter class distribution and range shall be similar to that found before the start of operations.
5. For all slopes 50% and greater leading away from the WLPZ, the WLPZ Outer Band shall be extended upslope to the break in slope (defined as a slope <50% for a distance of more than 100 feet) or upslope to a slope distance of 400 feet, whichever is less measured from the watercourse transition line or the outer edge of the CMZ. Within this area, at least 65% overstory shall be retained and no more than 40% of the conifer basal area may be harvested in a single entry.
6. For all slopes <50% adjacent to the WLPZ, a sediment filtration band shall be established from the WLPZ outer boundary upslope to at least 170 feet. Within the sediment filtration band all down wood shall be retained except slash, fire ignition is prohibited and the sediment filtration band is an EEZ.

XXXV-B-12 Class III WLPZs. All Class III waters will have a Watercourse and Lake Protection Zone (WLPZ). The WLPZ for Class III waters is divided into two bands. The WLPAs are measured 0 feet to 50 feet for slopes less than 50% and 0 feet to 100 feet for slopes 50% and greater, measured from the watercourse transition line.

#### Terms and Conditions for all Class III WLPZs

2. If any area within the WLPZ falls within the definition of a mass wasting area of concern, then the mass wasting strategy applies.
3. All WLPZ width requirements stop at the hydrologic divide.
4. All WLPZs are EEZs for timber operations, except for roads and permitted equipment crossings. All tractor road water crossings must be flagged on the ground prior to the pre-harvest inspection and show on the THP, NTMP, exemption, or emergency map in order to be adequately evaluated for the potential to generate sediment.
5. All down wood and debris in the WLPZ and the channel shall be retained.
6. Trees that fall naturally onto roads, landings or harvest units within the WLPZ are considered down wood and are to be retained in the WLPZ.
7. Full suspension yarding will be used when feasible. Full suspension is not feasible on flat ground, in other sites with limited deflection, where an adjacent landowner will not provide permission to secure a cable, or where a full suspension yarding system would jeopardize the safety of field personnel. For these conditions, yarding will be conducted in a manner that avoids ground disturbance that may deliver sediment to waters to the maximum extent practicable.
8. Trees not marked for harvest may be felled within the WLPZ to provide safety clearance for cable yarding corridors. Such felling will be done only as needed to ensure worker safety. In such cases, to the extent possible given site conditions and the FPRs, trees will be felled toward the waters to provide LWD and will be identified in the THP, NTMP, exemption, or emergency as an In Lieu Practice (14 CCR 916.1). Regardless, trees felled within the WLPZ for safety purposes will be retained as down wood.
9. Trees not marked for harvest which are damaged in the cable yarding corridors must be retained in place, either standing or as down wood.
10. No sanitation salvage, exemption harvest, or emergency timber operations is allowed in the 0 feet to 30 feet band.

#### Terms and Conditions for Class III WLPZs with Slopes <50%

2. No Harvest Band from 0 feet to 30 feet.
3. Sediment Filtration Band from 30 feet to 50 feet, apply all Class III terms and conditions identified above in items 1 through 9.

## Terms and Conditions for Class III WLPZs with Slopes 50% and Greater

2. No Harvest Band from 0 to 30 feet.
3. Sediment Filtration Band from 30 to 100 feet, apply all Class III terms and conditions identified above in items 1 through 9.

## XXXV-B-13 Terms and Conditions for Channel Migration Zones (CMZs)

1. No harvest, including sanitation salvage, exemption harvest and emergency timber operations, in the CMZ.
2. In cases of emergencies that could result in the loss of life or property, harvest may be allowed in the CMZ. Loss of property is defined as a demonstrated high risk of loss of capital improvements such as bridges, roads, culverts, and houses; however, it does not include the loss of vegetation.

## XXXV-C-10 Roads within the appurtenant to the THPs, NTMPs, exemptions, or emergency notices shall be constructed, reconstructed, upgraded, maintained, and operated such that:

- Roads do not initiate gully and landslide processes;
- Roads are hydrologically disconnected from Class I, II, and III watercourses and road-related sediment (both coarse and fine) does not reach watercourses;
- Coho movement is not impeded;
- The natural hillslope drainage network and hydrology are maintained. For all roads within the appurtenant to the THP, NTMP, exemption or emergency harvest area, the following terms and conditions shall be implemented:
  2. Within WLPZs and CMZs, no new road construction or reconstruction or opening of legacy roads (except for upgrading or decommissioning), or new stream crossings, unless approved by the DFG as locations that will have less effect on coho habitat than alternative routes or locations outside of WLPZs.
  3. No construction, reconstruction, road upgrading, or road rocking during the winter period.
  4. Use of unpaved roads within or appurtenant to THPs, NTMPs, exemption, or emergency timber operations shall cease when either of the following occur:
    - a. Precipitation is sufficient to generate overland flow off the road surface or

- b. Use of any portion of the road results in rutting of the road surface.

Road use shall not resume until the road is dry, defined as a road surface which is well drained, and not rutting or pumping fines, or causing a visible turbidity increase in a ditch or road surface, that drain at any time into a Class I, II, or III watercourse. Emergency access shall be allowed at any time to correct emergency road related problems and human emergency situations.

- 5. No skidding, road construction, road reconstruction, road upgrading, or road rocking during wet weather conditions. Commencement or resuming these activities shall not occur for 48 hours after precipitation ends or until the road is dry, defined as a road surface which is well drained and not rutting or pumping fines, or causing a visible turbidity increase in a ditch or road surface, that drain into a Class I, II, or III watercourse.
- 6. Road fill, watercourse crossings and actively eroding slopes that can be demonstrated as high risk of failure or high risk of delivering sediment to watercourses can be upgraded during the winter period and during wet weather conditions.
- 7. Construct roads using the guidelines for outsloping, rolling dips, critical dips and water bars found in Weaver and Hagans (1994).

#### XXXV-A-30 Terms and Conditions for Hillslope Management

- 1. No harvest, including sanitation salvage, exemption harvest and emergency timber operations, on mass wasting areas of concern, which include areas of extreme mass wasting hazard, very high mass wasting hazard, high mass wasting hazard inner gorges, headwall swales and unstable areas, including those within the WLPZs on Class I, II and III waters. Definitions of mass wasting areas of concern are as below:
  - a. Extreme, Very High and High Mass Wasting Hazard Areas are Hazard Areas determined and rated by the California Geological Survey using a combination of slope classes, geomorphology, landslide terrain, and unstable and erodible soils.
  - b. Inner gorge is that area of a watercourse bank situated immediately adjacent to the watercourse channel, having side slope of generally 65% to 65% or greater and extending from the edge of the channel upslope to the first break in slope (a break in slope is defined as a slope <65% for a distance of 100 feet or more) above the watercourse channel.

- c. Headwale Swale is a concave depression, with convergent slopes of 65% or greater that is connected to waters via a continuous linear depression (a linear depression interrupted by a landslide deposit is considered continuous for this definition).
  - d. Unstable Area is characterized by slide areas or by some or all of the following: hummocky topography consisting of rolling bumpy ground, frequent benches, and depressions; short, irregular surface drainages begin and end on the slope; tension cracks and head wall scarps; slopes are irregular and may be slightly concave in the upper half and convex in the lower half from previous slope failure; evidence of impaired ground water movement resulting in local zones of saturation within the soil mass which is indicated at the surface of sag ponds with standing water, springs, or patches of wet ground. Some or all of the following may be present: hydrophytic vegetation prevalent; leaning, jackstrawed or split trees are common; pistol butted trees with excessive sweep may occur in areas of hummocky topography (leaning and pistol butted trees should be used as indicators of unstable areas only in the presence of other indicators).
2. No construction or reconstruction of roads across mass wasting areas of concern, defined as areas of extreme mass wasting hazard, very high mass wasting hazard, high mass wasting hazard, inner gorges, headwall swales and unstable areas.
  3. Road storm-proofing, road closure and road decommissioning of existing roads are acceptable and encouraged on mass wasting areas of concern.
  4. Mass wasting areas of concern can be further defined on the ground with respect to the area boundaries as part of the individual THP, NTMP, exemption, or emergency. This refinement shall be conducted by the California Geological Survey or a qualified professional geologist, including but not limited to, certified engineering geologists licensed by the State of California.

#### **4.24.4 Petitioner's/Sierra Club's Proposal (Yes = 11; No = 3; Abstain = 2)**

XXYY-1: The Coho Recovery Team finds that there must be adequate financial, material, and personnel support for implementation of the measures in the Coho Recovery Strategy & Plan. The Recovery Team fully supports this -- both as representatives of individual entities and collectively. Public Trust Support for Coho Recovery must include extensive educational components and cost-share programs based on landowners' and residents' capabilities, and priorities for Coho habitat and population needs. Public Trust Support must be sufficient to mobilize effective immediate, continuing, and long-term action to recover Coho Salmon in its historical range to harvestable levels in terms of viable sustainable tribal, commercial, and sport fisheries. The establishment of endowment funds to enable steady support for this effort is key.

Legislative, administrative, initiative, and private sector actions are all likely to be necessary to create such endowment funds and related support networks for Coho Recovery.

XXXII-A-01: Cumulative Watershed Effects Evaluations and Responses that implement Coho Recovery Plans should be done on a Planning Watershed scale. This recommendation involves a team effort and a program that enables agencies, landowners, and residents to work together -- providing real incentives and high quality implementation measures for coho recovery in CALWATER Planning Watersheds. Qualified interagency teams would work together with landowners and residents to develop a single Cumulative Watershed Effects evaluation and response that contains an implementable Coho Protection & Recovery Plan. This would significantly and materially improve Coho restoration efforts, and provide relief from the currently costly repetitive -- and unused or unusable -- paperwork for cumulative impacts for each THP or CEQA project.

XXIX-F-03: The Coho Recovery Team recommends that a distinguished and effective panel of experts develop and implement the 'proof of concept' process described in the 2001 report, "A Scientific Basis for the Prediction of Cumulative Watershed Effects" (the 'Dunne Report'), by the U.C. Committee on Cumulative Watershed Effects. This panel would also -- more immediately -- implement the recommendation of the 1999 Science Review Panel Report (SRP Report) to explore and establish reasonable limits on harvest rates in watersheds to reduce impacts that adversely affect salmonids.

XXX-A-05: Implement High Standard Road Management Plans on forestland within coho watersheds. A model for this type of effort is found in the Stewardship Nonindustrial Timber Management Plan (SNTMP) being developed by the CDF Forest Stewardship Working Group. The implementation of such Road Management Plans should significantly reduce sedimentation for both forested and nonforested coho salmon and other salmonid watersheds in California.

XXYY-5: Establish a Riparian Recovery Program that results in the planting of riparian vegetation, especially conifers -- as appropriate, and the application of other riparian remediation measures throughout existing and potential coho salmon habitat. Proposed CEQA projects, such as Timber Harvest Plans (THPs), need to include documentation of riparian areas needing replanting and stabilization -- and a process to enable implementation of recovery measures. These efforts can help to get a jump-start on the establishment of quality riparian and instream habitat for Coho that would otherwise be delayed for decades or more.

XXV-D-01: Establish and implement adequate Standards for Watercourse Crossings. Focused attention must be given to upgrading the evaluation, design, construction, maintenance, and monitoring of watercourse crossings -- consistent with improvements called for by various reports and agencies. The Department especially

needs to exert its specific authority under the 1600 process to materially improve conditions for coho salmon recovery.

XXIX-G-03: Establish a Coho Recovery Monitoring Team. This team should be composed of qualified stakeholder representatives and experts, with a majority being ‘third party’ scientists having appropriate expertise. The Department should be represented on the team and considered the lead agency amongst other agencies represented on the team. The Coho Recovery Monitoring Team should provide oversight, and give direction for coho salmon related monitoring efforts, and make recommendations regarding monitoring issues and measures necessary for Coho recovery to the Fish & Game Commission and Department -- and to other appropriate entities.

XXX-A-06: Establish a project completion procedure for THPs and other projects requiring a Registered Professional Forester (RPF) whereby the RPF documents THP conditions pertinent to coho salmon after completion of logging operations, prior to formal approval of THP Completion by CDF and the Department. The RPF documentation should focus on pertinent prescribed mitigations and potential impacts, such as watercourse crossings, on the THP or other project that may adversely impact coho salmon.

XXX-M-01: Comprehensively incorporate into coho recovery efforts all existing processes and entities that are affecting, or can affect, the quality and rate of coho salmon recovery. The Total Maximum Daily Load (TMDL) program of the federal Environmental Protection Agency (EPA) and the State Water Resources Control Board (SWRCB), in conjunction with the Regional Boards for impaired waterbodies -- and the newly founded California Watershed Council -- are examples of such processes and entities.

#### **4.24.5 Forest Landowners’ Proposal (Yes = 13; No = 3; Abstain = 0)**

##### **Implementation**

XXXIV-A-3 fl: The Recovery Team recommends government commitment of adequate financial, material, and personnel support for the life of the State Coho Recovery Plan for on-the-ground recovery actions, identified in the State Coho Recovery Plan. Possible funding mechanisms may include:

- a. Legislation specifically identifying funding for recovery;
- b. Cost-share programs with private landowners, stakeholder groups and local governments; and
- c. Endowment and/or grant programs cooperatively with private sources.

XXXIV-B-01: DFG should provide technical expertise to support appropriate cooperatively undertaken recovery actions, which may include:

- a. Technical advisors to assist in the development of restoration proposals;
- b. Technical expertise to assist in the implementation of recovery activities on-the-ground; and
- c. Technical expertise to assist in training and education on coho restoration projects.

#### Watershed Planning

XXXII-B-3fl: DFG should develop and implement a program to design and implement a coho recovery plan for individual CALWATER Planning Watersheds. The program should promote and enable cooperative working relationships between agencies, landowners and residents. This program should include:

- a. Federal and state funding to assist landowners in performing watershed analysis in a manner usable by DFG;
- b. A systematic evaluation at the watershed level to identify key limiting factors for the recovery of coho salmon;
- c. Identification of site-specific sources and locations of the key limiting factors;
- d. Identification of restoration projects for watershed transportation systems, fish passage, slope stabilization measures, erosion control measures and drainage structures;
- e. Identification of beneficial management practices to protect existing values; and
- f. Use of these plans and the data that support them as the principle reference document, which would save landowners and/or project proponents additional costs associated with repetitive analysis and paperwork for each project.

XXXII-B-4fl: DFG should develop an information repository system for individual Planning Watersheds that utilizes and builds upon existing information, adding new information as it becomes available, while ensuring adequate confidentiality for information specifically pertaining to an individual's private property.

XXXII-B-fl: DFG should promote and support programmatic approaches to address key limiting factors in each CALWATER Planning Watershed with a watershed plan. Include these components:

- a. Where appropriate and costs to landowners are offset by monetary assistance, technical assistance or regulatory incentives, encourage landowners to develop and implement Road Management Plans that contribute to the restoration of coho salmon habitat;
- b. Where appropriate and the costs to landowners are offset by incentives, encourage the use of a licensed engineer to assist in the design and construction of watercourse crossings;
- c. Continuing education and training (classroom and field) to ensure watercourse crossings are appropriately designed, constructed and maintained;
- d. Cooperative habitat restoration projects that extend across ownerships to address habitat restoration efforts in a coordinated and cost effective manner; and
- e. State funding to assist landowners to implement coordinated watershed riparian vegetation improvement programs that:
  - i. Identify areas within the riparian zone where planting of riparian vegetation, including conifers, to improve coho habitat is appropriate and
  - ii. Promote vegetation modification (e.g., thinning, removal of undesired competitive vegetation) to accelerate riparian vegetation recovery and enhancement for coho habitat.

#### Integration – Timber

XXX-A-1fl: The Department should set up a long term monitoring system that measures the implementation and effectiveness of Forest Practice Rules in effect at the time of the monitoring. The monitoring shall measure the effectiveness of the rules for maintenance and recovery of coho salmon habitat.

XXIX-D-1fl: Encourage California Department of Forestry and California Geological Survey in concert with the Board of Forestry (through the Monitoring Study Group) to develop a monitoring program to evaluate whether mitigation measures implemented by Registered Professional Foresters as part of Timber Harvest Plans are effectively reducing the risk of mass soil movement associated with harvesting operations, including road and landing construction. Any monitoring system should be designed to compare harvested areas to non-harvested areas so it can be determined

whether harvesting, road and landing construction activities increase the likelihood of mass soil movement. The THP work completion report and the Monitoring Study Group's Hillslope Monitoring Program, as well as periodic air photo flights and photo interpretation, could provide the basis for monitoring and evaluation.

XXX-A-3fl: CDF document voluntary efforts taken by forest landowners beneficial to coho salmon that:

- a. Provide mitigation measures that exceed FPRs requirements and/or
- b. Are identified in specific CALWATER Watershed Recovery Plans.

XXVIII-B-1fl The Department should develop a system to evaluate implementation and effectiveness of voluntary efforts to recovery coho populations.

XXIX-F-1fl The Department should develop, with appropriate peer review, a long-term consolidation and analysis of resource assessments and monitoring data.

## **4.25 Ocean Conditions**

### **4.25.1 Consensus Recommendation**

RW-XXIV-A-01: Encourage and fund studies on the relationship between ocean conditions and coho salmon viability in freshwater streams.

### **4.25.2 Non Consensus Recommendations**

There are no non consensus recommendations on Ocean Conditions.

## **5.0 WATERSHED-SPECIFIC RECOMMENDATIONS**

Watershed-specific recommendations reflect a mix of actions necessary to address the limiting factors to a healthy environment for coho salmon in that watershed. Where the CRT believes a range wide recommendation is especially relevant in an HU, HA, or HSA the range wide recommendation may be repeated.

### **5.1 Southern Oregon Northern California Coasts ESU**

#### **5.1.1 Rogue River and Winchuck River Hydrological Units**

##### **5.1.1.1 Consensus Recommendations**

###### **5.1.1.1.1 Rogue River HU/Illinois River HA**

- RO-IR-01      Develop a long-term plan to promote retention of LWD.
- RO-IR-02      Support continued control of sediment.
- RO-IR-03      Monitor impacts of suction dredge activities.
- RO-IR-04      Develop a cooperative management strategy with Oregon Department of Fish and Wildlife to improve downstream habitat conditions.

###### **5.1.1.1.2 Winchuck River HU**

- WR-SF-01      Develop a short-term plan to increase LWD until natural recruitment can be restored.
- WR-SF-02      Develop a long-term plan to restore a mature coniferous riparian zone to South Fork Winchuck River.
- WR-SF-03      Support the assessment, prioritization, and treatment of sources of sediment.

##### **5.1.1.2 Non Consensus Recommendations**

There are no non consensus recommendations for the Rogue River and Winchuck River Hydrological Units.

## **5.1.2 Smith River Hydrological Unit**

### **5.1.2.1 Consensus Recommendations**

#### **5.1.2.1.1 HU**

SR-HU-02 Assess, prioritize and treat barriers to passage and other impediments to use (including water diversion), especially those blocking access to and use of smaller tributaries, including Clarks, Morrison, Peacock, Sultan, and Little Mill Creeks.

SR-HU-03 Develop and implement a plan to restore the effectiveness and use of off-channel areas, sloughs, and wetlands. Yontocket, Tillas, and Tryon sloughs should be given immediate attention with this program. Since a portion of Yontocket Slough is State property, the restoration of connectivity and functionality of this slough should be given priority.

SR-HU-04 Investigate the feasibility of restoring channelized reaches of streams to natural meander belts (e.g., Lower Rowdy Creek and Dominie Creek) which would allow recruitment of stored spawning gravel, reestablish scour pools, recruit woody debris from banks, and ultimately restore fluvial processes that maintain coho habitat.

SR-HU-05 Develop and implement measures to install LWD and provide for future LWD recruitment.

SR-HU-06 Assess the impacts of steelhead outplanting by the Rowdy Creek Hatchery.

SR-HU-08 Support the use of the existing watershed coordinator to aid in implementing recommendations.

#### **5.1.2.1.2 Mill Creek Hydrologic Sub Area**

SR-MC-01 Assess, prioritize, and treat sediment sources (mostly legacy roads).

SR-MC-02 Assess current levels of LWD, determine amount necessary for improved flushing, pooling and habitat conditions for coho, facilitate immediate placement and develop a plan for long term recruitment.

SR-MC-03 Develop and implement a plan for riparian planting.

#### **5.1.2.1.3 Wilson Creek Hydrologic Sub Area**

SR-WC-01 Work with landowners to determine the amount of LWD necessary for improved flushing, pooling and habitat conditions for coho, facilitate immediate placement and develop a plan for long term recruitment.

SR-WC-02 Develop a plan to increase connectivity of riparian habitat through fencing and planting.

SR-WC-03 Support the assessment, prioritization, and treatment of sources of sediment.

#### **5.1.2.1.4 Smith River Plain Hydrologic Sub Area**

SR-PL-01 Support the assessment, prioritization, and treatment of barriers to passage.

SR-PL-03 Support an assessment of the entire Elk Creek watershed.

SR-PL-04 Support prioritization and implementation of the watershed assessment.

### **5.1.2.2 Non Consensus Recommendations**

#### **5.1.2.2.1 HU**

SR-HU-01 Develop and implement a program to control exotic vegetation, particularly canary grass, which impedes access to and use of tributaries by coho salmon. (Yes=18; No=0; Abstain=1)

SR-HU-07 Adequately control legacy sources of sediment and provide for minimization of new sediment input. (Yes=15; No=0; Abstain=4)

*Alternate language: The Coho Recovery Team supports local government and private landowner actions to identify and treat sediment input to key coho streams.*

#### **5.1.2.2.2 Mill Creek Hydrological Sub Area**

There are no non consensus recommendations for Mill Creek.

#### **5.1.2.2.3 Wilson Creek Hydrological Sub Area**

There are no non consensus recommendations for Wilson Creek.

#### **5.1.2.2.4 Smith River Plain Hydrological Sub Area**

There are no non consensus recommendations for Smith River Plain.

### **5.1.3 Klamath River Hydrologic Unit**

#### **5.1.3.1 Consensus Recommendations**

##### **5.1.3.1.1 HU**

KR-HU-01: Facilitate development of an adaptive management plan in preparation for low-flow emergencies in cooperation with the Bureau of Reclamation, NOAA Fisheries, USFWS, DOE, tribes, SWQCB, and other stakeholders.

KR-HU-02: Facilitate development of an adaptive management plan in preparation for low flow emergencies in cooperation with Bureau of Reclamation, NOAA Fisheries, USFWS, DOI, tribes, SWQCB and other stakeholders.

KR-HU-03: Develop a plan to restore and maintain tributary and mainstem habitat connectivity where low flow or sediment aggradation is restricting fish passage.

KR-HU-04: Develop a plan (including a feasibility analysis) for fish passage over and above Iron Gate and Copco dams to restore access to historic habitat.

KR-HU-06: Recommend that the Bureau of Reclamation implement the Trinity River TMDL in-stream flushing flows without affecting Record of Decision allocations.

KR-HU-08: Complete other comprehensive flow study activities that will enable water managers to understand the impacts of their actions to coho salmon.

KR-HU-09: Apply protective down-ramp rates at Iron Gate Dam to minimize stranding of coho fry.

KR-HU-10: Improve water quality coming into the Klamath River mainstem from the Upper Klamath Basin by supporting efforts to improve water quality in the upper basin.

KR-HU-13: Ensure that uplands in key cold water tributaries are managed in such a way to preserve their cold water thermal regime.

KR-HU-14: Investigate coho non-natal rearing and refugia use in lower reaches of tributaries and mainstem confluences. Protect and enhance tributary reaches identified as providing refugia to coho juveniles.

KR-HU-16: Assess hatchery operations in terms of coho recovery. Basic questions regarding the hatchery's effectiveness need to be answered, such as competition with wild stocks, genetic dilution of wild stocks with hatchery stocks, etc.

KR-HU-17: Continue disease monitoring on Klamath River mainstem juvenile salmon outmigration so that major disease outbreaks can be identified and their causes evaluated.

KR-HU-18: Conduct disease monitoring of migrating adult Chinook and coho salmon during the fall migrational period.

KR-HU-19: Conduct studies in and around the Klamath River Hydroelectric Project to see if the Project is contributing to habitat for the *Ceratomyxosis* intermediate host.

KR-HU-21: Step up roads and fuels management, especially in tributaries with potential to contribute catastrophic loads of sediment to the mainstem Klamath.

KR-HU-24a: Provide watermaster service for all diversions with partial funding provided by state or federal government.

KR-HU-24b: Utilize and enforce to the extent possible any applicable laws under the respective jurisdictions to prevent or minimize and mitigate the removal of LWD in rivers, streams, and estuaries that may be used by coho.

#### **5.1.3.1.2 Klamath Glen Hydrologic Sub Area**

KR-KG-01: Support the continuation of long-term estuary investigations to better understand the estuary's role in the survival of Klamath Basin coho salmon.

KR-KG-02: Develop a plan to restore off-channel estuarine, wetland, and slough habitat in lower Hunter and Salt Creeks:

- a. Investigate the purchase of key properties, conservation easements, or development rights from willing sellers and
- b. Encourage the installation of livestock exclusion fencing to protect restored areas.

KR-KG-03: Develop a plan to maintain Blue Creek watershed tributaries as key thermal refugia and for their cool water contributions to the mainstem Klamath River.

- a. Ensure that sediments from upslope activities do not impact the refugia;
- b. Continue upslope stabilization and restoration activities including road assessment and treatment;
- c. Continue in-channel and riparian restoration efforts; target riparian retention efforts; and
- d. Remove feral cattle.

KR-KG-04: Plan for the protection and restoration of other Klamath mainstem tributaries, even those that do not support populations of coho but that provide cool water

and which improve mainstem Klamath water quality, particularly during warm summer months. Actions should:

- a. Protect and/or restore riparian habitat;
- b. Stabilize upslope areas to prevent sedimentation and aggradation of tributaries at their mouths; and
- c. Improve federal land management to reduce impacts to riparian corridors and sediment loads.

KR-KG-05: Support actions to reduce sediment input from upslope sources, such as:

- a. Decommission roads and skidtrails;
- b. Upgrade roads and maintenance practices;
- c. Ensure adequate fish migration is provided for at-stream/road crossings;
- d. Stabilize slopes to minimize or prevent erosion and to minimize future risk of eroded material entering streams; and
- e. Minimize alteration of natural hillslope drainage patterns.

KR-KG-06a: Assess, prioritize and treat barriers impeding migration of adult and juvenile coho salmon throughout the Lower Klamath tributaries.

KR-KG-06b: Investigate temporal and spatial magnitude of tributary deltas and seasonal subsurface flow reaches to determine impacts to juvenile and adult coho salmon migration and to quantify seasonal loss of lower tributary habitat. Investigation should include assessment of long-term delta size trends, annual variation in fish access periodicity by tributary, quantification of seasonal habitat loss and fish stranding, and the relation of delta and subsurface flow formation to upslope erosion, river and tributary flow, mainstem bedload deposition and other causative factors.

KR-KG-06c: Conduct feasibility study to reestablish adult coho salmon passage above major barriers in lower Roaches and Tully Creeks and the Middle and North Forks of Ah Pah Creek.

KR-KG-07: Support treating sediment sources and improving riparian and in-stream habitat conditions to provide adequate and stable spawning and rearing areas for coho salmon.

KR-KG-08: Develop a plan to restore in-channel and riparian habitat in tributaries:

- a. Revegetate riparian zones with native species (i.e., conifers) to stabilize streambanks and promote a long-term supply of LWD;
- b. Provide adequate protection from development, grazing, etc. for riparian areas; and
- c. Relocate roads out of riparian areas where feasible.

KR-KG-09: Develop a plan to provide suitable accumulations of woody cover in slow-velocity habitats for coho salmon winter rearing on a short-term basis by placing wood in needed areas until natural supplies become available.

KR-KG-10a: Construct livestock exclusionary fencing and corresponding riparian restoration as necessary in Salt, lower High Prairie, lower Hunter and lower Terwer Creeks. Provide funding and incentives to landowners and/or restoration groups where necessary to achieve this goal.

KR-KG-10b: Develop a plan to remove feral cattle from lower Blue and Bear Creeks.

KR-KG-11: Work with Humboldt County, NOAA Fisheries and existing and future gravel mining operators to restrict gravel mining operations to appropriate mainstem Klamath locations. Gravel mining should not be conducted within Lower Klamath tributary watersheds until a scientifically valid and peer-reviewed geomorphic analysis is conducted to determine existing channel stability, causes of excess aggradation, and identifies gravel mining as an appropriate restorative measure.

KR-KG-12: Express appreciation for the outstanding cooperation between The Yurok Tribe and Simpson Resources Company.

KR-KG-13: Supplement on-going efforts to provide short-term and long-term benefits to coho salmon by restoring LWD in the lower Klamath tributaries through:

- a. LWD placement;
- b. Management to promote conifer recruitment;
- c. Improvement of existing riparian zones through plantings, release of conifers, and control of alders, blackberries, and other competitors; and
- d. Incentives to landowners, such as funding and technical support.

KR-KG-14: Provide technical and financial support to implement riparian restoration throughout alluvial reaches in lower Blue, Terwer, Hunter, and Salt creeks.

KR-KG-15: Investigate straying and impacts of exotic fish (bass and bullhead) populations in an abandoned mill pond in lower Richardson Creek to coho salmon in the adjoining Klamath River estuary.

KR-KG-17: Continue funding and technical support for the California Conservation Corps Del Norte Center to continue their collaborative participation with the Yurok Tribe and Simpson Resource Company to implement watershed restoration throughout the Lower Klamath sub-basin.

KR-KG-18: Support continued implementation of the Coho Salmon Regional Abundance Inventory throughout the Lower Klamath sub-basin.

KR-KG-19: Develop a plan to protect and restore tributaries even those that do not support coho salmon.

#### **5.1.3.1.3 Orleans Hydrologic Sub Area**

KR-OR-02: Support activities to maintain connectivity (flow) between mainstem habitat and tributary habitat in Slate and Red Cap Creeks.

KR-OR-03: Develop a plan to protect and enhance spawning and rearing habitats in Boise and Camp Creeks.

KR-OR-04: Develop a plan to protect and enhance Bluff and Red Cap Creek watersheds classified as Key Watersheds in the Northwest Forest Plan. Key watersheds serve as refugia for maintaining and recovering habitat for stocks of anadromous fish at risk such as coho salmon.

KR-OR-05: Reestablish natural fire regimes consistent with the Northwest Forest Plan to reduce the risk and impact of catastrophic fire on coho salmon.

KR-OR-06: Support efforts to provide livestock exclusion fencing where feasible and appropriate, while providing off-site watering.

KR-OR-07: Support actions to reduce sediment input from upslope sources, such as to:

- a. Decommission roads and skidtrails;
- b. Upgrade roads and maintenance practices;
- c. Ensure adequate fish migration is provided for at stream/road crossings;
- d. Stabilize slopes to minimize or prevent erosion and to minimize future risk of eroded material entering streams; and
- e. Minimize alteration of natural hillslope drainage patterns.

#### **5.1.3.1.4 Ukonom Hydrologic Sub Area**

KR-UK-02: Support actions to reduce sediment input from upslope sources, including measures to:

- a. Decommission roads and skidtrails;
- b. Upgrade roads and maintenance practices;
- c. Ensure adequate fish migration is provided for at stream/road crossings;
- d. Stabilize slopes to minimize or prevent erosion and to minimize future risk of eroded material entering streams; and
- e. Minimize alteration of natural hillslope drainage patterns.

KR-UK-03: Develop a plan to restore and maintain tributary and mainstem habitat connectivity where low flow or sediment aggradation is restricting fish passage. Implement highest priority barrier repairs as identified in the Caltrans inventory. USFS and the Karuk Tribe have identified culverts on Highway 96 at Stanshaw, Sandy Bar, and Coon Creeks as needing treatment.

KR-UK-04: Develop a plan to ensure continued yields of high quality water and maintain the ecological function of tributary riparian systems, including measures to:

- a. Conduct riparian revegetation and streambank restoration;
- b. Encourage, where feasible, the relocation of roads out of riparian areas and off of unstable land features (e.g., active landslides, granitic terrain, toe zones, wet-seepy areas);
- c. Increase the number of conifers and deciduous trees, where appropriate, for more stable stream banks, stream shading, and eventual recruitment of LWD; and
- d. Revegetate floodplain areas using native species.

KR-UK-05: Supplement on-going efforts to provide short-term and long-term benefits to coho salmon by restoring LWD in the Ukonom HSA through:

- a. LWD placement;
- b. Management to promote conifer recruitment;
- c. Improvement of existing riparian zones through plantings, release of conifers, and control of alders, blackberries, and other competitors; and
- d. Incentives to landowners, such as funding and technical support.

KR-UK-06: Reestablish natural fire regimes consistent with the Northwest Forest Plan to reduce the risk and impact of catastrophic fire on coho salmon.

KR-UK-07: Where necessary, provide riparian protection from livestock, while providing off-site watering.

KR-UK-08: Encourage installation of screens on diversion to DFG-NOAA Fisheries standards. Provide funding incentives to landowners where necessary to achieve this goal.

KR-UK-09: Increase efficiency of water diversions and delivery systems where feasible and appropriate. Provide funding and incentives to landowners where necessary to meet this goal.

KR-UK-10: Continue restoration and monitoring of Siskon Mine to prevent further degradation of the riparian resource.

KR-UK-11: Request SWRCB to investigate the legality of diversions and use of water on Stanshaw Creek.

#### **5.1.3.1.5 Happy Camp Hydrologic Sub Area**

**KR-HC-02:** Support actions to reduce sediment input from upslope sources, including measures to:

- a. Decommission roads and skidtrails;
- b. Upgrade roads and maintenance practices;
- c. Ensure adequate fish migration is provided for at stream/road crossings;
- d. Stabilize slopes to minimize or prevent erosion and to minimize future risk of eroded material entering streams; and
- e. Minimize alteration of natural hillslope drainage patterns.

**KR-HC-04:** Develop a plan to ensure continued yields of high quality water and maintenance of the ecological function of tributary riparian systems, including measures to:

- a. Conduct riparian revegetation and streambank restoration;
- b. Encourage, where feasible, the relocation of roads out of riparian areas and off of unstable land features (e.g., active landslides, granitic terrain, toe zones, wet-seepy areas);
- c. Increase the number of conifers and deciduous trees, where appropriate, for more stable stream banks, stream shading, and eventual recruitment of LWD; and
- d. Revegetate floodplain areas using native species.

**KR-HC-05:** Supplement on-going efforts to provide short-term and long-term benefits to coho salmon by restoring LWD in the Happy Camp HSA through:

- a. LWD placement;
- b. Management to promote conifer recruitment;
- c. Improvement of existing riparian zones through plantings, release of conifers, and control of alders, blackberries, and other competitors; and
- d. Incentives to landowners, such as funding and technical support.

**KR-HC-06:** Reestablish natural fire regimes consistent with the Northwest Forest Plan to reduce the risk and impact of catastrophic fire on coho salmon.

**KR-HC-07:** Where necessary, provide riparian protection from livestock, while providing off-site watering.

**KR-HC-08:** Encourage installation of screens on diversions to DFG-NOAA Fisheries standards. Provide funding incentives to landowners where necessary to achieve this goal.

KR-HC-09: Increase efficiency of water diversions and delivery systems where feasible and appropriate. Provide funding and incentives to landowners where necessary to meet this goal.

KR-HC-10: Encourage the North Coast RWQCB to continue monitoring Grey Eagle Mine and tailings as a follow-up to remediation that has already been done. Urge EPA Region 9 to consider coho when dealing with both emergency and remedial actions.

#### **5.1.3.1.6 Seiad Valley Hydrologic Sub Area**

KR-SV-02: Support actions to reduce sediment input from upslope sources, including measures to:

- a. Decommission roads and skidtrails;
- b. Upgrade roads and maintenance practices;
- c. Ensure adequate fish migration is provided for at stream/road crossings;
- d. Stabilize slopes to minimize or prevent erosion and to minimize future risk of eroded material entering streams; and
- e. Minimize alteration of natural hillslope drainage patterns.

KR-SV-03: Support efforts to improve fish passage at stream and road crossings, including measures to:

- a. Replace culverts on both USFS and Caltrans roads with structures allowing fish passage;
- b. Treat fish passage problems associated with the USFS roads;
- c. Replace undersized culverts that will not pass 100-year storm runoff; and
- d. Encourage USFS, county and state agencies to provide adequate budgets basin-wide for road maintenance and upgrades.

KR-SV-04: Develop a plan to ensure continued yields of high quality water and maintain the ecological function of tributary riparian systems, including measures to:

- a. Conduct riparian revegetation and streambank restoration;
- b. Encourage, where feasible, the relocation of roads out of riparian areas and off of unstable land features (e.g., active landslides, granitic terrain, toe zones, wet-seepy areas);
- c. Increase the number of conifers and deciduous trees, where appropriate, for more stable stream banks, stream shading, and eventual recruitment of LWD; and
- d. Revegetate floodplain areas using native species.

KR-SV-05: Supplement on-going efforts to provide short-term and long-term benefits to coho salmon by restoring LWD in the Seiad Valley HSA through:

- a. LWD placement;
- b. Management to promote conifer recruitment;

- c. Improvement of existing riparian zones through plantings, release of conifers, and control of alders, blackberries, and other competitors; and
- d. Incentives to landowners, such as funding and technical support.

KR-SV-07: Where necessary, provide riparian protection from livestock while providing off-site watering.

KR-SV-08: Encourage installation of screens on diversions to DFG-NOAA Fisheries standards. Provide funding incentives to landowners where necessary to achieve this goal.

KR-SV-09: Study the likely benefits to instream flow of increasing the efficiency of water diversions and delivery systems where feasible and appropriate. Provide funding and incentives to landowners where necessary to meet actions that are given a high priority.

KR-SV-10: Identify water diverters; request that SWRCB review and/or modify water use based on the needs of fish and authorized diverters.

KR-SV-11: Look for opportunities to acquire water rights for instream flow from willing participants who possess valid water rights.

KR-SV-12: Assess potential fish passage problem associated with private water diversion at the mouth of Middle Creek (tributary to Horse Creek). If the problem exists, design and implement a remediation project.

#### **5.1.3.1.7 Beaver Creek Hydrologic Sub Area**

KR-BC-01: Reestablish natural fire regimes consistent with the Northwest Forest Plan to reduce the risk and impact of catastrophic fire on coho salmon.

KR-BC-02: Encourage landowners to manage fuels to prevent catastrophic fires and to evaluate the application of the Watershed Evaluation Mitigation Addendum.

KR-BC-04: Hydrologically disconnect the USFS Beaver Creek road north of West Beaver Creek.

KR-BC-05: Support actions to reduce sediment from upslope sources such as:

- a. Decommission roads and skid trails;
- b. Upgrade roads and maintenance practices;
- c. Ensure adequate fish migration is provided for at stream/road crossings;
- d. Stabilize slopes to minimize or prevent erosion and to minimize future risk of eroded material entering streams;
- e. Minimize alteration of natural hillslope drainage patterns; and

- f. Encourage, where feasible, the relocation of roads out of riparian areas and off of unstable land features (e.g., active landslides, granitic terrain, toe zones, wet-seepy areas).

#### **5.1.3.1.8 Hornbrook Hydrological Sub Area**

There are no recommendations for Hornbrook Hydrological Sub Area.

#### **5.1.3.1.9 Iron Gate Hydrological Sub Area**

There are no recommendations for Iron Gate Hydrological Sub Area.

### **5.1.3.2 Non Consensus Recommendations**

#### **5.1.3.2.1 HU**

KR-HU-11: Perform cost/benefit analysis of full or partial Hydroelectric Project removal for the purposes of improving water quality, fish passage, and sediment transport. (Yes = 13, No = 0, Abstain = 2)

KR-HU-15: Address water quality and quantity problems in the Shasta and Scott Rivers, as well as any other Klamath tributaries that are exacerbating the mainstem water quality problems. (Yes=14; No=4; Abstain=1)

*KR-HU-15 Alternate language: Address water quality and water quantity problems in any Klamath tributaries that may affect mainstem water quality.*

KR-HU-20: Restore appropriate coarse sediment transport near Iron Gate Dam. Means to achieve this could include full or partial project removal, or gravel introduction such as is done below other major dams such as Trinity Dam. (Yes=13; No=4; Abstain=2)

*KR-HU-20 Alternate language: Restore appropriate coarse sediment transport near Iron Gate Dam.*

KR-HU-22: Where lack of flows is a limiting factor, acquire additional water through conservation easements, purchases and/or transfers of water and water rights from willing sellers, where appropriate. Dedicate these flows to instream fish and wildlife needs. Water transfers would be used as an interim, emergency measure, with easements and purchases for the long-term. (Yes = 14, No =0, Abstain =1)

(Note: water leasing is acceptable only as an interim measure because it is not sustainable. Taxpayers will not be willing to pay farmers year after year to purchase water in order to meet flow needs. Furthermore, there are legal issues which arise in relationship to water leasing that are likely insurmountable. These issues include adjudicated and non-adjudicated rights, priorities in the adjudication and interconnected

groundwater pumping. For these reasons, recovery plans that include water leasing should clearly indicate that leasing is an interim, emergency measure.)

KR-HU-23: Institute a water right purchase and rededication program utilizing a water trust that includes all stakeholders on its board of directors, for purchase of water rights. Water trusts would be chartered and funded for purchase of non-irrigation easements. (Yes = 7, No = 0, Abstain = 7)

(Note: All the riparian revegetation and road-fixing will not recover coho without adequate instream flows. Purchase of stock water rights would result in increased flows from October through March and would go a long way toward meeting the needs of Coho and part way toward meeting the needs of other anadromous species. Purchase of stockwater rights has the advantage of minimal impact to agricultural production. Many ranchers already have alternative watering systems they utilize during droughts or which were provided with restoration funds. Retirement of stockwater rights would also help eliminate inadvertent and intentional out-of-season irrigation which is a problem in these valleys. It would presumably also save on watermaster costs. Water trusts should be chartered and funded for purchase of non-irrigation easements. This approach overcomes potential problems with landowners who could substitute groundwater pumping or use of an alternative surface water source if the trust purchases only a specific surface water right.)

#### **5.1.3.2.2 Klamath Glen Hydrological Sub Area**

There are no non consensus recommendations for Klamath Glen.

#### **5.1.3.2.3 Orleans Hydrological Sub Area**

KR-OR-01: Develop a plan to protect and restore tributaries, even those that do not support populations of coho salmon that provide cool water and which improve mainstem Klamath water quality and which provide thermal refugia for fish, particularly during warm summer months. The plan should:

- a. Include improved land management to reduce impacts to riparian corridors, reduce sediment loads, and protect water resources;
- b. DFG request that the SWRCB review existing water appropriations for compliance;
- c. DFG petition the SWRCB to designate streams with critical summer flows as fully appropriated streams during the appropriate period; and
- d. Provide measures that reduce hydrologic connectivity between streams and roads where feasible. (Yes=16; No=0; Abstain=3)
- e.

#### **5.1.3.2.4 Ukonom Hydrological Sub Area**

There are no non consensus recommendations for Ukonom.

#### **5.1.3.2.5 Happy Camp Hydrological Sub Area**

KR-HC-01: Develop a plan to protect and restore tributaries, even those that do not support populations of coho salmon that provide cool water and which improve mainstem Klamath water quality and which provide thermal refugia for fish, particularly during warm summer months. The plan should:

- a. Include improved land management to reduce impacts to riparian corridors, reduce sediment loads, and protect water resources;
- b. DFG request that the SWRCB review existing water appropriations for compliance;
- c. DFG petition the SWRCB to designate streams with critical summer flows as fully appropriated streams during the appropriate period; and
- d. Provide measures that reduce hydrologic connectivity between streams and roads where feasible. (Yes=16; No=0; Abstain=3)
- e.

#### **5.1.3.2.6 Seiad Valley Hydrological Sub Area**

There are no non consensus recommendations for Seiad Valley.

#### **5.1.3.2.7 Beaver Creek Hydrological Sub Area**

There are no non consensus recommendations for Beaver Creek.

#### **5.1.3.2.7 Hornbrook Hydrological Sub Area**

There are no non consensus recommendations for Hornbrook.

#### **5.1.3.2.8 Iron Gate Hydrological Sub Area**

There are no non consensus recommendations for Iron Gate.

### **5.1.4 Salmon River Hydrologic Area**

#### **5.1.4.1 Consensus Recommendations**

##### **5.1.4.1.1 HA**

SA-HA-02: Establish a multi-agency task force to assume implementation of barrier removal. This task force would include, at a minimum, representatives from Salmon River Restoration Council, USFS, NOAA Fisheries, USFWS, and DFG.

SA-HA-03: Support efforts to educate landowners through the Salmon River Restoration Council to reduce the impacts of private roads on coho salmon.

SA-HA-04: Support the on-going efforts of Salmon River Restoration Council to deal with invasive exotics using Integrated Pest Management.

SA-HA-04b: Request that the USFS support the on-going efforts of the Salmon River Restoration Council to manually remove invasive exotics as part of the Integrated Pest Management policy.

SA-HA-05: Encourage the use of Fire Safe Council's recommendations promoting the reduction of fuel near residences to reduce human-caused fires spreading into the forest.

SA-HA-06: Investigate how USFS is dealing with riparian and aquatic conservation in the Northwest Forest Plan regarding fire suppression and fuels management and encourage the USFS to consider coho in their overall fuel management plan.

SA-HA-07: Recognize the Salmon River Restoration Council's value for cost-effective education and restoration.

SA-HA-08: Encourage USFS to continue to work closely with the Salmon River Restoration Council.

SA-HA-09: Support and supplement on-going efforts to provide short-term and long-term benefits to coho salmon by restoring LWD in Salmon River through:

- a. LWD placement;
- b. Management to promote conifer recruitment;
- c. Improvement of existing riparian zones through plantings, release of conifers, and control of alders, blackberries, and other competitors; and
- d. Incentives to landowners, such as funding and technical support.

SA-HA-10: Develop a plan to remediate mine tailings.

#### **5.1.4.1.2 Lower Salmon River Hydrological Sub Area**

There are no consensus recommendations for the Lower Salmon River Hydrological Sub Area.

#### **5.1.4.1.3 Sawyers Bar Hydrological Sub Area**

There are no consensus recommendations for the Sawyers Bar Hydrological Sub Area.

#### **5.1.4.2 Non Consensus Recommendations**

##### **5.1.4.2.1 HU**

SA-HA-01: With the goal of reducing sediment and providing fish passage at all life history stages where roads affect coho streams:

- a. Request that USFS implement recommendations for roads already assessed and accelerate the Northwest Forest Plan road assessment schedule;
- b. Encourage Siskiyou County to complete road sediment inventory assessment and implement treatment of county roads; and
- c. Encourage Siskiyou County to implement recommendations of the completed assessment of barriers. (Yes=13; No=0; Abstain=1)
- d.

##### **5.1.4.2.2 Lower Salmon River Hydrological Sub Area**

There are no non consensus recommendations for the Lower Salmon River.

##### **5.1.4.2.3 Sawyers Bar Hydrological Sub Area**

There are no non consensus recommendations for Sawyers Bar.

#### **5.1.5 Shasta and Scott Valleys Hydrologic Areas**

##### **5.1.5.1 Consensus Recommendations**

SS-HA-02: Support actions to reduce anthropogenic-caused sediment input from upslope sources identified through public and private inventories. Prioritize remediation activities, which would include slope stabilization minimizing sediment production, and eliminating fish passage barriers.

SS-HA-03: Encourage Federal, state, and county agencies and private landowners to reduce impacts to coho salmon habitat from public and private road systems. Continue road assessment activities to identify and prioritize sources and risks of road-related sediment. Support activities to:

- a. Reduce road densities where necessary and appropriate;
- b. Decommission or upgrade prioritized roads and skid trails;
- c. Upgrade roads and road maintenance practices to eliminate or reduce the potential for concentrating run-off to streams during rainfall events;
- d. Decrease potential for stream flow to become diverted at road crossings during high flow events resulting in flow along the road that returns to the channel at undesirable locations;
- e. Stabilize slopes to minimize or prevent erosion and to minimize future risk of eroded material entering streams;

- f. Minimize alteration of natural hillslope drainage patterns;
- g. Encourage funding authorities to allocate adequate budgets to federal, state, and local agencies for road maintenance activities, capital project activities, and dedicated funding to pay for fish passage projects; and
- h. Support efforts to educate landowners through the Scott Valley Watershed Council and the Shasta River CRMP to reduce the impacts of private roads on coho salmon.

SS-HA-04a: Establish adequate funding from state and federal agencies to prioritize and upgrade culverts to pass 100-year flows and the expected debris loads (e.g., LWD that might be mobilized). To provide fish passage, encourage funding authorities to allocate adequate resources to prioritize and upgrade culverts within the range of coho salmon to pass 100-year flows and the expected debris loads (e.g., LWD that might be mobilized).

SS-HA-04b: Identify barriers to passage and prioritize them for removal, through collaborative efforts with other agencies' needs.

SS-HA-05: DFG and DOC to work with Siskiyou County to design and implement a reclamation plan. Develop a plan to remediate effects of historical mining (i.e., tailings near Callahan) to enhance production and survival of coho salmon. Identify locations, costs, and restoration potential of intensively mined areas.

SS-HA-06: Improve water quality by reducing or minimizing both domestic and municipal sources of nutrient input (i.e., sewage treatment plant discharge, septic system discharge, and storm drain runoff). Support efforts by cities and rural communities to complete system upgrades to achieve Clean Water Act compliance.

SS-HA-07: Minimize impacts of cattle grazing on watercourses as necessary and appropriate (i.e., providing off-site watering, preventing over grazing, etc.)

SS-HA-08: Support cooperative state and local efforts to redirect Big Mill Creek into its historic channel under State Route 3 thereby restoring adult and juvenile coho access to approximately 1.25 miles of quality spawning and rearing habitat.

SS-HA-09: Assess the potential benefits and technical feasibility of exercising the USFS right to stream flow in the Scott River for fish and wildlife within the Klamath National Forest under the Scott River Decree. This should be dealt with during the verification described in SSRT water management recommendations.

SS-HA-10: DFG to ask the Bureau of Reclamation to study the potential benefits of adjusting Iron Gate flows to better meet the needs of adult and juvenile life stages to enhance Scott/Shasta coho production, consistent with the flow needs of the Klamath and Trinity systems.

SS-HA-17: The Recovery Team recognizes that the Department has authority to collect data on navigable waterways. In addition, the CRT recommends the Department develop a data collection and sharing policy for the Scott and Shasta watersheds that:

- a. Requires permission of private landowners for access across private lands to collect data where such access is desired;
- b. Provides for disclosure of data collected from private lands in a form or by a means that protects landowner privacy (i.e., disclosure of data at stream-reach level or other appropriate scale that protects landowner privacy, but also shows the relationship to the nearest tributary confluences);
- c. Requires that disclosed data be quality assured and quality controlled;
- d. Provides that disclosure should include metadata files indicating who collected the data, and how and for what purposes the data were collected;
- e. If requested, disclosed data should be in electronic form if it already exists in that form; and
- f. Data requests should be responded to in a timely manner, recognizing limitations of staff and budgets can affect processing requests.

SS-HA-18: Support ongoing watershed planning and complete comprehensive, peer-reviewed watershed restoration plans for the Shasta and Scott Rivers that include identification and prioritization of all restorative needs in each basin. When restoration funds are limited, implementation should occur on the highest priority issues most likely to effectively address coho salmon needs within each basin.

SS-HA-24: Investigate incentive-based alternatives with willing participants for preserving water quality, quantity and coho habitat in the Big Springs area in the Shasta River.

#### **5.1.5.2 Non Consensus Recommendations**

SS-HA-01: Reduce the risk of catastrophic fires through fuels management (especially in the Scott) around residential structures and homes. Implement Fire Safe Council recommendations promoting the reduction of fuel near residences to reduce human-caused fires spreading into the forest and causing harm to coho habitat. (Yes=17; No=1; Abstain=1)

SS-HA-12 ( Ref = SSRT WM 9): Conduct a comprehensive flow study throughout the Shasta and Scott Rivers and their tributaries to establish minimum flow levels that meet the water flow, water quality and habitat connectivity needs for protection and recovery of coho salmon and their habitat. Methods utilized for the comprehensive flow study should be determined by a technical group of experts from the

Klamath Basin, including, but not limited to: CDFG, USFWS, Klamath Basin Tribes, NOAA Fisheries, USGS, and USFS. (Yes = 14; No = 4; Abstain = 0)

SS-HA-13 (Ref = SSRT WM 9 in part): Utilize an interim methodology (e.g. desktop methodologies based on unimpaired hydrology) to establish minimum flow levels for implementation throughout the Shasta and Scott Rivers until a comprehensive flow study can be completed. Methods utilized for the interim flow study should be determined by a technical group of experts from the Klamath Basin, including, but not limited to: CDFG, USFWS, Klamath Basin Tribes, NOAA Fisheries, USGS, and USFS. (Yes = 13; No = 5; Abstain = 0)

SS-HA-14 (SSRT Ref = Water Augmentation): Provide minimum flows in accordance with the results of the flow studies. Where available water is found to be insufficient to meet all needs, purchase water rights and/or establish conservation easements from willing participants to provide for adequate instream flows throughout the year. (Yes = 12; No = 4; Abstain = 1)

SS-HA-15: Maintain and increase watermaster service and SWRCB water rights enforcement in the Scott and Shasta River basins to ensure diversions do not exceed levels that would preclude meeting scientifically determined minimum stream flows and adjudicated water rights. (Yes = 12; No = 4; Abstain = 1)

SS-HA-19: (SSRT Ref = HM-2-B) Create a strategy for Greenhorn and Dwinnell dams, including assessment of suitability of habitat upstream, options for passage or modification/removal. (Yes = 15; No = 3; Abstain = 0)

SS-HA-20: Establish interim minimum fish flows below Dwinnell Dam pending the results and implementation of a comprehensive flow study and Dwinnell Dam alternatives study. (Yes = 13; No = 3; Abstain = 2)

SS-HA-21 (SSRT Ref = P-1): All currently unscreened diversions need to have self-cleaning fish screens installed. In particular, the Parks Creek diversion needs to have a fish screen installed promptly. (Yes = 13; No = 2; Abstain = 3)

SS-HA-22 (SSRT Ref = HM 3 a, b, c): Prepare a gravel budget for the watershed. Determine natural processes that historically maintained spawning gravel. Evaluate suitability for spawning and access to rearing areas for emergent fry. Identify where and how coarse sediment transport is currently limited and methods of restoring quantity and quality of gravel. Identify and map existing and potential spawning gravel locations and sources of gravel. Develop management actions that can be taken to address identified deficiencies. (Yes = 14; No = 4; Abstain = 0) (also in this vote: Delete SS-HSA-23)

SS-HA-25 (SS Ref = Water Use Efficiency 3, 5c, 6a): Provide funding and incentives to landowners to implement improvements to agricultural efficiency, e.g., ditch lining or pipe replacement, field leveling, and alternative cropping. (Yes = 13; No = 4; Abstain = 0)

SS-HA-26 (SSRT Ref = WM-3a and 3b): Apply protective down-ramp rates at agricultural diversions in the Scott and Shasta Rivers to minimize stranding of coho juveniles. (Yes = 12; No = 4; Abstain = 1)

SS-HA-27 (SSRT Ref = Water Use Efficiency-1b, also Water Augmentation ): Develop alternative stock watering systems and/or purchase stockwater rights from willing sellers to improve water flow from October through March. (Yes = 12; No = 4; Abstain = 1)

SS-HA-28 (SSRT Ref = UE-7a, 7b): Methods for treatment of agricultural return water should be studied as a way to reduce thermal and nutrient input to the Scott and Shasta Rivers. (Yes = 12; No = 4; Abstain = 1)

SS-HA-29 (SSRT Ref = P-2): Riparian management, including set-back livestock exclusionary fencing, revegetation efforts and grazing management should be implemented to benefit coho as a way of increasing shade cover and decreasing water temperatures. (Yes = 13; No = 4; Abstain = 0)

SS-HA-30 (SSRT Ref = HM-2-a): Evaluate the geomorphology of the Scott River system. Identify all areas of high width-to-depth ratios, high channel entrenchment, or other geomorphically compromised areas. Implement identified projects that improve stream geomorphology in conjunction with system-wide stream channel improvement. Identify and apply consistently a system of stream classification. (Yes = 12; No = 4; Abstain = 1)

SS-HA-31: Conduct a feasibility study to assess the potential of substituting Shasta River agricultural water with water from the Klamath River, allowing higher quality Shasta River water to stay in the system. (Yes = 11; No = 5; Abstain = 1)

SS-HA-32: Stream flow requirement studies of the Shasta and Scott Rivers should be a priority of the Department. Funding for the studies should be provided as specified in PRC 10004 and 10005. (Yes = 13; No = 2; Abstain = 2)

SS-HA-33: Given the concerns of the statewide Coho Recovery Team and standing of the Petitioners, the following recommendations are put forth as needed to insure protection and recovery of coho salmon in the Scott/Shasta watersheds.

Until such time as surface flow and groundwater studies are completed and recommendations implemented, the Department shall place a high priority in the Scott and Shasta watersheds on enforcing current Fish and Game Code sections as outlined in Chapter 6.19 (Enforcement Of Existing Laws), SW XXXIII-A-01, 02, 03, 04 and 06 of the Recovery Strategy For Coho Salmon (August 2003).

The Division of Water Rights (DWR) shall place a high priority on enforcement of existing water codes including 1052 and 1831 in the Scott and Shasta watersheds.

Encourage the Department of Fish and Game (DFG) and NOAA Fisheries to meet with the purpose of developing and implementing DFG/NOAA Joint Flow Recommendations north of the Mattole River and specifically in the Scott/Shasta watersheds. (Yes = 11; No = 5; Abstain =1)

SS-HA-34: The proposed five year Incidental Take Permit shall clearly cite as conditions: compliance with laws, codes, regulations and ordinances referenced in SS-HA-33. (Yes =12; No = 5; Abstain = 0)

### **5.1.6 Trinity River Hydrological Unit**

#### **5.1.6.1 Consensus Recommendations**

##### **5.1.6.1.1 HU**

TR-HU-02: Recommend to the North Coast RWQCB that the TMDL process consider alterations in the sediment load allocations and targets due to implementation of the ROD.

TR-HU-03: Determine genetic make-up of current hatchery and natural stock. Develop and implement a hatchery genetic management (HGMP) for coho salmon to utilize the most fit and appropriate stock for use in the Trinity River.

TR-HU-04: Add a conservation element to the hatchery goals.

TR-HU-05: Recommend that the Bureau of Reclamation increase tributary habitat and watershed restoration implementation as part of the Main Stem Trinity River Restoration Plan management, without compromising implementation of the ROD.

TR-HU-06: Recommend that the Bureau of Reclamation implement the Trinity River TMDL instream flushing flows without affecting ROD allocations.

TR-HU-07: Encourage the NCRWQCB to establish TMDL implementation plans for the Main Stem and South Fork using the upslope indicators and targets established in the Main Stem Load Allocation (Table 3-3 of the Main Stem TMDL).

TR-HU-08: Support development of a county grading ordinance based on exemption, certification (BMPs), and permitting criteria.

TR-HU-09: Urge Trinity County to implement the Five Counties *Water Quality and Stream Habitat Protection Manual for County Road Maintenance in Northwestern California Watersheds*.

TR-HU-10: Support continued state and federal funding for the implementation of sediment reduction programs for private lands and the implementation of DIRT prioritized sediment source sites treatment funding on county roads.

TR-HU-11: Urge Trinity County to establish incentives and standards for private riparian and wetlands area protection based on flexible subdivision design, road curb and gutter requirements, minimum lot size and density, clustering and other techniques.

TR-HU-12: Urge Trinity County to establish riparian setbacks for grading activities on private lands, based on Fish and Game 1994 recommendations to District I counties.

TR-HU-13: Evaluate the impacts of non-native fish species on coho salmon and develop management guidelines to reduce impacts.

TR-HU-14: Urge Trinity County to develop or amend existing County Conservation, Open Space and Land Use Elements and Community Plans to focus development away from riparian habitats, wetland habitats, or steep slopes. Consider all species habitats, wild land-urban fire hazard and other land uses factors in making allocations.

#### **5.1.6.1.2 Douglas City Hydrologic Sub Area**

TR-DC-01: Investigate all water diversions on Reading Creek and Browns Creek. Restore fish passage and encourage installation of screens to DFG-NOAA standards. Provide incentives to landowners when necessary to reach this goal.

TR-DC-02: Increase riparian function in lower Reading Creek and Browns Creek with conservation easements or landowner incentives that reduce agricultural and grazing impacts.

#### **5.1.6.1.3 Grouse Creek Hydrologic Sub Area**

TR-GC-01: Support continued implementation of habitat restoration, including measures to stabilize upslope areas, enhance riparian zones, storm proof, stabilize, and/or decommission roads, and replace culverts.

#### **5.1.6.1.4 Hyampom Hydrologic Sub Area**

TR-HY-01: Request that the USFS develop a management plan for Big Slide to reduce human contributions to mobilization of sediments, including evaluating relocation of the county road that crosses Big Slide.

TR-HY-02: Request that the USFS reduce fuel loading in stands that could be susceptible to catastrophic fire. Where appropriate, this management should include

actions to accelerate the growth of conifers for LWD recruitment, develop mature shade canopy in the riparian zone, and to provide for other multiple use goals.

#### **5.1.6.1.5 Hayfork Valley Hydrologic Sub Area**

TR-HA-01: Encourage agricultural/residential water conservation programs through incentive programs.

TR-HA-02: Recommend that Trinity County amend its Critical Water Resources Overlay to address new riparian water rights development resulting from parcel subdivision. The amendment should include expanding the overlay zoning to additional watersheds where summer surface flows are limiting factors for residents and for coho fisheries habitat.

TR-HA-03: Support continued implementation of riparian improvements through restoration activities, land use planning, and conservation easements.

#### **5.1.6.2 Non Consensus Recommendations**

##### **5.1.6.2.1 HU**

TR-HU-01: Implement the Trinity River Record of Decision (ROD) which would provide:

- a. Variable annual instream flows for the Trinity River from the Trinity River Dam (TRD) based on forecasted hydrology for the Trinity River Basin as of April 1<sup>st</sup> of each year, ranging from 369,000 acre-feet (af) in critically dry years to 815,000 af in extremely wet years.
- b. Physical channel rehabilitation, including the removal of riparian berms and the establishment of side-channel habitat;
- c. Sediment management, including the supplementation of spawning gravels below the TRD and reduction in fine sediments which degrade fish habitats;
- d. Watershed restoration efforts, addressing negative impacts which have resulted from land use practices in the Basin; and
- e. Infrastructure improvements or modifications, including rebuilding or fortifying bridges and addressing other structures affected by the peak instream flows provided by the ROD. (Yes=16; No=0; Abstain=3)

##### **5.1.6.2.2 Douglas City Hydrological Sub Area**

There are no non consensus recommendations for Douglas City.

##### **5.1.6.2.3 Grouse Creek Hydrological Sub Area**

There are no non consensus recommendations for Grouse Creek.

#### **5.1.6.2.4 Hyampon Hydrological Sub Area**

There are no non consensus recommendations for Hyampon.

#### **5.1.6.2.5 Hayfork Hydrological Sub Area**

There are no non consensus recommendations for Hayfork.

### **5.1.7 Mad River Hydrologic Area**

#### **5.1.7.1 Consensus Recommendations**

##### **5.1.7.1.1 HU**

MR-HU-01: Work with landowners and other appropriate entities to reduce coho tributary stream temperature through the development of mature coniferous streamside overstory within the riparian zone by continuing:

- a. Planting programs in stream corridors barren of mature conifers;
- b. Timber Harvest Plan review; and
- c. Riparian management projects with cattle ranchers.

MR-HU-02: Recommend that the SWRCB make a high priority the review of authorized diversions that have no provisions to protect coho. Recommend that the SWRCB make a high priority the identification of unauthorized diversions and enforcement actions to stop them in this HU.

MR-HU-03: Work with landowners and other appropriate entities to improve the quality and quantity of deep pools, spawning gravels, and cover by measures to:

- a. Protect existing LWD recruitment potential through the retention of mature coniferous trees in the riparian zone;
- b. Establish adequate streamside buffer areas that are protected from vegetation removal;
- c. Increase the amount of in-channel LWD;
- d. Continue to review Timber Harvest Plans; and
- e. Continue riparian management projects with ranchers.

MR-HU-04: Require the implementation of pre-project geological surveys where needed. Develop permit conditions to limit activities within unstable areas and identify mitigation measures for restoration and enhancement.

MR-HU-05: Counties and incorporated areas should adopt measures to protect riparian vegetation for all development over which they have jurisdiction.

MR-HU-08: Develop a plan to restore and maintain tributary and mainstem habitat connectivity where low flow or sediment aggradation is restricting fish passage. This is a known problem at Canon Creek, Dry Creek, and North Fork Mad River.

MR-HU-09: Consider the mouths of Canon Creek, Dry Creek, and North Fork Mad River as locations for a pilot project to:

- a. Identify causes of loss of connectivity and implement the identified strategy and
- b. Evaluate management techniques and address permitting complexity for identified measures.

MR-HU-10: Continue stream management activities with landowners in Lower Lindsay Creek.

MR-HU-11: Develop programs to control exotic vegetation, especially canary grass.

MR-HU-12: Evaluate three years' data from the study on the Mad River Hatchery to determine the impact of its steelhead production on coho salmon.

#### **5.1.7.1.2 Blue Lake and North Fork Mad Hydrologic Sub Areas**

MR-BL-01: Encourage landowners, municipalities, and tribal interests to work together to develop a watershed restoration plan.

MR-BL-02: Encourage agencies and land managers to work with qualified watershed groups:

- a. Develop and support well informed watershed communities with regards to coho habitat issues;
- b. Ensure that there are adequate incentives for landowners who participate in activities to protect and/or restore coho habitat and watershed processes;
- c. Implement an outreach program regarding issues of parity and obligations of stakeholder groups; and
- d. Make these HSAs high priority areas for implementing these statewide measures.

#### **5.1.7.1.3 Butler Valley Hydrological Sub Area**

There are no recommendations for the Butler Valley Hydrological Sub Area.

### **5.1.7.2 Non Consensus Recommendations**

#### **5.1.7.2.1 HU**

MR-HU-07: Assess barriers to passage. Prioritize barriers for removal. Develop a plan to treat the barriers, with Warren Creek given a high priority for treatment. (Yes=17; No=1; Abstain=1)

#### **5.1.7.2.2 Blue Lake and North Fork Mad Hydrological Sub Area**

There are no non consensus recommendations for Blue Lake and North Fork Mad.

#### **5.1.7.2.3 Butler Valley Hydrological Sub Area**

There are no non consensus recommendations for Butler Valley.

### **5.1.8 Redwood Creek Hydrological Unit**

#### **5.1.8.1 Consensus Recommendations**

RC-HU-01: DFG should work with Redwood National and State Parks, private landowners, and interested parties to improve fish habitat conditions of the estuary while protecting Highway 101 and the Town of Orrick. These plans should aim toward restoring the historic form and function of the estuary/lagoon and slough channels, riparian forests, and adjacent wetlands. This includes providing for:

- a. Unconfined channels;
- b. Restoration of riparian vegetation, tree cover, wetlands, and off-channel and rearing habitat;
- c. Increased sediment transport, pool depth, and LWD;
- d. Work to restore natural drainage patterns from adjacent wetlands; and
- e. Improved conditions of slough and tributaries to the estuary (Strawberry, Dorrance and Sand Cache Creeks).

RC-HU-02: DFG should work with USACE, Redwood National and State Parks, and Humboldt County Planning Department to modify levee maintenance manuals to be consistent with habitat requirements of coho salmon.

RC-HU-03: Develop a plan to supplement on-going efforts to provide short-term and long-term benefits to coho salmon by restoring LWD at appropriate sites across the Redwood Creek basin through:

- a. LWD placement;
- b. Management to promote conifer recruitment;

- c. Improvement of existing riparian zones through plantings, release of conifers, and control of alders, blackberries, and other competitors; and
- d. Incentives to landowners, such as funding and technical support.

#### **5.1.8.2 Non Consensus Recommendations**

There are no non consensus recommendations for the Redwood Creek Hydrological Unit.

### **5.1.9 Trinidad Hydrological Unit**

#### **5.1.9.1 Consensus Recommendations**

##### **5.1.9.1.1 HU**

TP-HU-01: Support the assessment, prioritization, and treatment of sediment sources, particularly roads that have not been assessed and acknowledge progress that has been made in addressing sediment sources.

TP-HU-02: Work with the County and landowners to maintain flood plain capacity and prevent future encroachment on the flood plain.

##### **5.1.9.1.2 Big Lagoon Hydrologic Sub Area**

TP-BL-01: Continue to work with private landowners to develop riparian buffers with an adequate conifer component and canopy closure to reduce temperatures, increase LWD, and provide sediment filtration.

TP-BL-02: Develop a plan to restore the historic flood plain on Mill Creek in cooperation with landowners.

##### **5.1.9.1.3 Little River Hydrologic Sub Area**

TP-LR-01: Develop a plan to improve the functioning of the lower river estuary. Re-establish conifers and a functional flood plan and riparian zone on the lower river channel. Re-establish more complex in-stream habitat.

TP-LR-02: Urge landowners to minimize the impacts of agricultural activities on the estuary.

TP-LR-04: Work with the county, local government, and landowners to maintain current flood plan capacity and prevent future encroachment on the flood plain.

### **5.1.9.2 Non Consensus Recommendation**

#### **5.1.9.2.1 HU**

There are no non consensus recommendations for the HU.

#### **5.1.9.2.2 Big Lagoon Hydrologic Sub Area**

There are no non consensus recommendations for Big Lagoon.

#### **5.1.9.2.3 Little River Hydrologic Sub Area**

TP-LR-03: Request that the Coastal Commission require the landowner who constructed the cranberry bogs without permits to fund restoration of the area by a qualified restoration expert. (Yes=17; No=4; Abstain=0)

### **5.1.10 Eureka Plain Hydrologic Unit**

#### **5.1.10.1 Consensus Recommendations**

EP-HU-03: In cooperation with agencies and landowners, develop a plan to reestablish estuarine function.

EP-HU-04: Acknowledge the Arcata City Sewage Treatment Project and encourage implementation of similar projects elsewhere.

EP-HU-05: Assess sources of sediment input, prioritize and implement remediation projects.

EP-HU-28: Support and encourage urban stream daylighting<sup>24</sup> efforts in Arcata and Eureka to reconnect and restore coho salmon habitat.

#### **5.1.10.2 Non Consensus Recommendations**

EP-HU-01: Supplement on-going efforts to provide short-term and long-term benefits to coho salmon by restoring LWD and shade through:

- a. LWD placement;
- b. Improvement of existing riparian zones through plantings, release of conifers, and control of alders, blackberries, and other competitors; and

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<sup>24</sup> Daylighting is change from culvert or other enclosed water transport system back to a configuration open to daylight.

- c. Incentives to landowners, such as technical support. (Yes = 15; No = 0; Abstain = 1)

EP-HU-02: Support implementation of Humboldt County's provisions to protect Stream Management Areas and evaluate their effectiveness; recommend revisions as necessary. (Yes = 14; No = 0; Abstain = 2)

EP-HU-06: Review recent habitat surveys and identify gaps in data; conduct or recommend habitat surveys in areas identified as lacking data; and identify and prioritize rearing habitat reaches for protection. (Yes = 14; No = 0; Abstain = 2)

EP-HU-07: Improve quality and quantity of deep pools and spawning gravels. (Yes = 14; No = 0; Abstain = 2)

EP-HU-08: Restore and maintain historical tidal areas, backwater channels and salt marsh in cooperation with willing landowners. (Yes = 14; No = 0; Abstain = 2)

EP-HU-09: Maintain, protect, and restore channel conditions important to fish in all life stages and other aquatic species (spawning gravels, pool depth, rearing gravels, food) as it relates to bedload. (Yes = 14; No = 0; Abstain = 2)

EP-HU-10: Identify reaches where naturally functioning channel and floodplain conditions exist and maintain and restore a functioning floodplain and natural channel processes where practicable. (Yes = 14; No = 0; Abstain = 2)

EP-HU-11: Identify impacted reaches where a functioning floodplain could be re-established. Prioritize areas that are not naturally functioning for restoration potential and develop site specific project objectives to protect and restore naturally functioning channel and floodplain conditions where feasible. (Yes = 14; No = 0; Abstain = 2).

EP-HU-12: Conduct hydrologic analysis for all Humboldt Bay tributaries. (Yes = 14; No = 0; Abstain = 2)

EP-HU-13: Establish access for both adult and juvenile salmonids to suitable habitat where practicable:

- a. Upgrade all county culverts already identified as passage barriers and prioritized for repair and
- b. Inventory migration barriers other than county culverts (private roads, tide gates) including Rocky and Washington Gulch. (Yes = 14; No = 0; Abstain = 2)

EP-HU-14: Improve rearing habitat:

- a. Conduct an LWD survey and

- b. Identify locations and areas for potential recruitment an/or placement of LWD structures:
  - 1) Map areas where large conifer riparian habitat exists;
  - 2) Increase the canopy by planting appropriate conifer and hardwood species composition along the stream where the canopy is not at acceptable levels. In many cases, planting will need to be coordinated to follow bank stabilization or upslope erosion control projects;
  - 3) Protect existing LWD structure;
  - 4) Increase the amount of large wood debris in rearing reaches;
  - 5) Provide additional LWD for rearing habitat;
  - 6) Ensure retention of mature trees in the riparian corridor;
  - 7) Establish adequate streamside buffer areas that are protected from vegetation removal; and
  - 8) Protect and maintain habitat associated with instream LWD. (Yes = 14; No = 0; Abstain = 2)
  - 9)

EP-HU-15: Maintain functional riparian habitat:

- a. Conduct an assessment of historic and present riparian conditions;
- b. Develop site specific riparian restoration plans to riparian restoration plans
  - 1) Restore degraded riparian habitat and
  - 2) Establish a monitoring program to evaluate the success of restoration projects. (Yes = 14; No = 0; Abstain = 2)
  - 3)

EP-HU-16: Maintain and/or attain turbidity and suspended sediment levels beneficial to coho salmon during all life stages:

- a. Establish a coordinated turbidity monitoring plan and
- b. Reduce input of fine sediments into the stream system:
  - 1) Conduct a comprehensive road inventory;
    - a) Carry out priority road related sediment reduction;
    - b) Implement priorities for road-related sediment reduction projects identified in existing road inventories;
    - c) Identify areas still needing road/erosion inventories; and
    - d) Identify on-going road maintenance needs.
  - 2) Identify landslide hazard areas such as steep unstable slopes, stream crossings (other than those identified in the road inventory) and inner gorge area implement pre-project geological surveys and/or sediment reducing management activities within these areas, especially road construction, grading, and intensive timber harvests. (Yes = 14; No = 0; Abstain = 2)

EP-HU-17: Assess temperatures beneficial to coho salmon during all life stages:

- a. Evaluate temperature ranges in all tributaries;

- b. Review existing temperature data;
- c. Identify data gaps and establish watershed-wide temperature monitoring program; and
- d. Determine if temperatures are a concern for coho salmon. (Yes = 14; No = 0; Abstain = 2)

EP-HU-18: Maintain and improve water quality to levels that allow all coho salmon life stages to thrive:

- a. Prevent point and non-point source pollution (i.e., septic systems, livestock, household chemicals, petro-chemicals, herbicides, fertilizer and other pollutants):
  - 1) Where necessary, limit direct livestock access to stream and runoff impacts from livestock pens;
  - 2) Identify any pollutants that are potentially affecting coho salmon; and
  - 3) Identify priorities for pollution reduction and a strategy to be pursued.
- b. Establish dissolved oxygen (DO) monitoring in watersheds:
  - 1) Assess DO levels during low flows with existing data;
  - 2) Identify data gaps on DO levels in watersheds; and
  - 3) Evaluate DO levels. (Yes = 14; No = 0; Abstain = 2)

EP-HU-19: Determine and maintain adequate flows for migrating juvenile and adult salmon:

- a. Develop an inventory of current water rights and
- b. Conduct a field survey of water withdrawals in main-stem and tributaries. (Yes = 14; No = 0; Abstain = 2)

EP-HU-20: Maintain open space lands (agriculture, forestland) for water retention and limit addition of impervious surfaces in the watershed. (Yes = 14; No = 0; Abstain = 2)

EP-HU-21: Identify socioeconomic impacts of watershed management and future possible solutions. (Yes = 14; No = 0; Abstain = 2)

EP-HU-22: Facilitate and sustain a well informed watershed community with regards to coho salmon habitat issues. (Yes = 14; No = 0; Abstain = 2)

EP-HU-23: Ensure that there are adequate incentives for landowners who choose to protect and/or restore watershed processes. (Yes = 14; No = 0; Abstain = 2).

### **5.1.11 Eel River Hydrologic Unit**

#### **5.1.11.1 Consensus Recommendations**

##### **5.1.11.1.1 HU**

ER-HU-01: Support the existing watershed cooperative working groups and the formation of new groups where necessary.

ER-HU-02: Acknowledge that the pike minnow is a problem and support efforts to control it.

ER-HU-04: Support the assessment, prioritization, and treatment of sediment sources.

ER-HU-05: Recommend that the SWRCB make a high priority the identification of unauthorized diversions and enforcement actions to stop them in the Eel River HU.

ER-HU-08: Develop a plan to restore an adequate migration corridor in the mainstem Eel River.

##### **5.1.11.1.2 Ferndale Hydrologic Sub Area**

ER-FE-01: Encourage the Salt River Local Implementation Plan to incorporate coho-friendly measures, in cooperation with the agencies. For the Salt River Local Implementation Plan to be effective, assessment prioritization and treatment of sediment sources in the watershed must be completed.

##### **5.1.11.1.3 Scotia Hydrologic Sub Area**

There are no consensus recommendations for the Scotia Hydrologic Sub Area.

##### **5.1.11.1.4 South Fork Eel River Hydrologic Area**

ER-SF-01: Explore opportunities to acquire conservation easements with conditions that provide for benefits to fisheries resources.

##### **5.1.11.1.5 Weott Hydrologic Sub Area**

ER-WE-01: Support the Department of Parks and Recreation's efforts to complete the storm proofing of the Bull Creek watershed.

ER-WE-02: Support the Department of Parks and Recreation and private property owners planting of trees and implement other habitat enhancement as necessary in the Bull Creek and Salmon Creek watersheds.

ER-WE-03: Request that Caltrans assess, prioritize, and treat culverts that are barriers to passage along Avenue of the Giants and US 101.

#### **5.1.11.1.6 Benbow Hydrologic Sub Area**

ER-BE-01: Support an assessment of the entire watershed.

ER-BE-03: Investigate the feasibility of rescue and relocation of doomed downstream migrants.

ER-BE-04: Request that CDF monitor Non-industrial Timber Management Plans to ensure that they are properly implemented.

#### **5.1.11.1.7 Laytonville Hydrologic Sub Area**

ER-LA-01: Support continued watershed restoration efforts, including measures to reduce temperatures in Ten-Mile Creek.

ER-LA-02: Support efforts to prioritize and treat culverts on county roads that are barriers.

ER-LA-03: Encourage the county to coordinate with landowners on the removal of barriers on private property.

ER-LA-04: Support efforts by the Sheriff to enforce laws against dumping and the Department of Health to clean up dumped materials.

ER-LA-06: Encourage cities, counties and Caltrans to adopt maintenance manuals that protect coho habitat (e.g, standards for sidecasting of spoils and identification of spoils disposal sites).

ER-LA-07: To minimize and reduce the effects of water diversions, take actions to improve State Water Resources Control Board (SWRCB) coordination with other agencies to address season of diversion, off-stream reservoirs, bypass flows protective of coho salmon and other anadromous salmonids and natural hydrograph, and avoidance of adverse impacts caused by water diversion, including funding of assessment and GIS mapping of water diversions and determination and monitoring of Fish and Game Code Section 1600 Program compliance related to water diversions.

#### **5.1.11.1.8 Outlet Creek Hydrologic Sub Area**

ER-OC-01: Prepare a technical assessment of Outlet Creek watershed: develop recommendations to restore long-term function and prioritize implementation.

ER-OC-02: Encourage the City of Willits to become involved in planning for coho recovery and to :

- a. Assess, prioritize, and treat barriers to passage;
- b. Address water quality issues;
- c. Modify facility maintenance practices as necessary; and
- d. Evaluate land use planning and revise plans as appropriate.

#### **5.1.11.2 Non Consensus Recommendations**

##### **5.1.11.2.1 HU**

ER-HU-07: Encourage CHERT to incorporate coho-friendly measures. (Yes = 11; No = 1; Abstain = 5)

##### **5.1.11.2.2 Ferndale Hydrological Sub Area**

There are no non consensus recommendations for Ferndale.

##### **5.1.11.2.3 Scotia Hydrologic Sub Area**

ER-SC-01: Support preparation of an inventory of roads where necessary, then prioritize and treat. After roads have been treated and sediment reduced, then improve habitat conditions. (Yes = 9; No = 5; Abstain = 2)

ER-SC-02: Evaluate the benefits to coho salmon of removing the barrier on Bridge Creek. (Yes=18; No=1; Abstain=0)

##### **5.1.11.2.3 South Fork Eel River Hydrologic Sub Area**

There are no non consensus recommendations for South Fork Eel.

##### **5.1.11.2.4 Weott Hydrological Sub Area**

There are no non consensus recommendations for Weott.

##### **5.1.11.2.5 Benbow Hydrological Sub Area**

There are no non consensus recommendations for Benbow.

##### **5.1.11.2.6 Laytonville Hydrological Sub Area**

There are no non consensus recommendations for Laytonville.

##### **5.1.11.2.7 Outlet Creek Hydrological Sub Area**

ER-OC-03: Encourage the NCRWQCB to upgrade the Basin Plan to benefit coho salmon. (Yes = 11; No = 0; Abstain = 5)

### **5.1.12 Cape Mendocino Hydrologic Unit**

#### **5.1.12.1 Consensus Recommendations**

##### **5.1.12.1.1 HU**

CM-HU-01: Encourage placement of LWD in stream channels to improve channel structure and function.

##### **5.1.12.1.2 Mattole River Hydrological Sub Area- Southern Sub Basin**

CM-MS-01: Encourage elimination of unnecessary and wasteful use of water to improve stream surface flows and coho habitat through outreach and education of water and conservation practices. Include in the outreach and education sections of the recovery plan.

CM-MS-02a: Ensure protection of the high quality habitat found in the Mattole River Headwaters and historic coho streams.

CM-MS-02b: Protect high quality habitat in the South Fork of Vanauken Creek, Mill Creek, Stanley Creek, Thompson Creek, Yew Creek, and Lost Man Creek through recognition of current land management practices and encourage private landowners to continue land stewardship.

CM-MS-03: DFG, RWQCB, landowners, and others work cooperatively to establish monitoring stations at appropriate locations to monitor in-channel sediment (or turbidity) both in the lower basin and in the lower reaches of major tributaries.

CM-MS-06: Follow the NCRWQCB suggested BMPs to protect water quality from the ground application of pesticides.

CM-MS-07: Work with UCCE Extension Specialists to monitor summer water and air temperatures and flow in cooperation with landowners using DFG accepted protocols. Continue and expand on-going temperature monitoring efforts.

SM-MS-08: Request that Mendocino County evaluate new subdivisions for their impacts on coho habitat.

CM-MS-09: Request that Mendocino County investigate promoting cluster development away from streams to protect coho salmon.

CM-MS-10: Provide incentives to landowners to protect habitat and reduce water use.

CM-MS-11: Develop educational materials for landowners explaining how they can protect coho salmon.

CM-MS-15: Encourage the planting of trees in riparian areas where the conditions are suitable.

#### **5.1.12.1.3 Mattole River Hydrological Sub Area – Western Sub Basin**

CM-MW-01: Assess current levels of LWD, determine amount necessary for improved flushing, pooling and habitat conditions for coho, facilitate immediate placement and develop a plan for long term recruitment.

CM-MW-02: Cooperate in establishing monitoring stations at appropriate locations (e.g., Squaw Creek, Honeydew Creek and Bear Creek) to monitor in-channel sediment and track aggraded reaches in the lower basin and in the lower reaches of major tributaries.

CM-MW-04: Encourage the monitoring of summer water and air temperatures using DFG-accepted protocols. Continue temperature monitoring efforts in Stansberry, Mill (RM 2.8) Clear, Squaw, Woods, Honeydew Bear, North Fork Bear, South Fork Bear, Little Finley, Big Finley, and Noonung Creeks, and expand efforts into other sub-basin tributaries.

CM-MW-05: Develop a plan to manage near-stream buffers to reduce the effects of solar radiation and to moderate air temperatures.

CM-MW-06: Encourage the assessment of riparian habitat, prioritization, and reclamation and enhancement of riparian habitat.

CM-MW-07: Recognize and support on-going efforts of landowners, BLM, and others to improve habitat conditions for coho salmon.

CM-MW-08: Recommend coordinated, expedited processing of SRWQCB and 1600 permits for projects that are intended to reduce summer diversions.

CM-MW-09: Conduct a public education program to raise awareness of the habitat needs of coho salmon and how the community, especially landowners, can improve coho habitat.

CM-MW-10: Develop incentives for landowners and communities to reduce summer water withdrawals and enhance habitat.

CM-MW-11: Develop programs to support existing land-use patterns and discourage conversions and subdivisions.

#### **5.1.12.1.4 Mattole River Northern Sub Basin**

There are no consensus recommendations for the Northern Sub Basin.

#### **5.1.12.1.5 Mattole River Eastern Sub Basin**

There are no consensus recommendations for the Eastern Sub Basin.

### **5.1.12.2 Non Consensus Recommendations**

#### **5.1.12.2.1 HU**

There are no non consensus recommendations for the HU.

#### **5.1.12.2.2 Mattole River Southern Sub Basin**

CM-MS-04: Support the assessment, prioritization, and treatment of sources of excess sediment. (Yes = 16; No = 0; Abstain = 1)

CM-MS-05: Study herbicide use with respect to impacts on coho salmon. Urge lead agencies to consider herbicide application in CEQA and NEPA review. (Yes = 16; No = 0; Abstain = 1)

CM-MS-13: Request that the SWRCB made the enforcement of water rights in this watershed a priority. (Yes = 16; No = 0; Abstain = 1)

#### **5.1.12.2.3 Mattole River Western Sub Basin**

CM-MW-14: Pursue opportunities to acquire fee title, easement, and water rights from willing sellers. Votes: Yes=17; No=1; Abstain=1.

#### **5.1.12.2.4 Mattole River Northern Sub Basin**

There are no non consensus recommendations for Mattole River Northern Sub Basin.

#### **5.1.12.2.5 Mattole River Eastern Sub Basin**

There are no non consensus recommendations for Mattole River Eastern Sub Basin.

## **5.2     Central California Coast ESU**

### **5.2.1   Mendocino Coast Hydrological Unit**

#### **5.2.1.1 Consensus Recommendations**

##### **5.2.1.1.1     HU**

MC-HU-06:             Increase stream complexity by actions to:

- a.     Retain current limited supply of LWD, boulders, and other structure-providing features;
- b.     Install new LWD, boulders, and other features immediately; and
- c.     Restore riparian vegetation to provide for future recruitment of LWD.

MC-HU-07:             Support the assessment, prioritization, and treatment of sediment sources at the HSA level.

MC-HU-08:             Determine site-specific recommendations, including incentives to remedy high temperatures. Depending on the terrain and aspect, this could include riparian planting to increase shade to reduce high ambient temperature and raise humidity along streams.

Mc-HU-09:             Map unstable soils and use that information to guide land-use decisions, road design, THP, and other activities that can promote erosion.

MC-HU-10:             Provide education and training on water diversion practices and facilitate compliance with pertinent regulations (e.g., Fish and Game Code 1600 et. seq., CFPR 916.9, California water rights law).

MC-HU-11:             Improve pool frequency and depth by actions to:

- a.     Increase scale and efficiency of LWD improvement efforts;
- b.     Continue to treat existing upslope sediment sources;
- c.     Avoid creating new sources (e.g., road crossings); and
- d.     Avoid or minimize land ownership fragmentation/conversion to more intensive uses.

MC-HU-12:             Discourage poaching by measures to:

- a.     Cooperate with and provide incentives to landowners to maintain road and trail closures to be effective against trespass;
- b.     Encourage monitoring of road closures and timely repair of defective or damaged road closure systems;
- c.     Promote Cal Tip, especially how it might apply to spawning coho salmon; and

- d. Report un-permitted road use to local, state, and federal enforcement personnel during periods when coho salmon are running.

MC-HU-14: Supplement on-going efforts to provide short-term and long-term benefits to coho salmon by restoring LWD and shade through:

- a. LWD placement;
- b. Management to promote conifer recruitment;
- c. Improvement of existing riparian zones through plantings, release of conifers, and control of alders, blackberries, and other competitors; and
- d. Incentives to landowners, such as technical support.

MC-HU-15: Maintain or improve instream flows by actions to:

- a. Avoid or minimize increases in water use and
- b. Provide incentives to remove or convert direct diversions to off-stream storage and restrict the season of diversion to December through March.

MC-HU-17: Continue providing subvention funds to the county for Williamson Act contracts in this HU. Work with landowners and others to maintain or re-establish geographic distribution of coho salmon by continuing to allocate substantial improvements efforts towards identified key refugia streams with substantial coho salmon populations and/or otherwise suitable conditions.

MC-HU-18: Coordinate with the North Coast Regional Water Quality Control Board (NCRWQCB) to implement water quality monitoring and streamline permitting of coho habitat restoration projects (RWQCB 401, USACE 404, NOAA Fisheries, and USFWS permitting).

MC-HU-19: Encourage state and federal agencies to provide adequate funding to methodically upgrade culverts to pass 100-year flows and the expected debris loads (e.g., LWD that might be mobilized). To provide fish passage, encourage funding authorities to allocate adequate resources to prioritize and upgrade culverts within the range of coho salmon to pass 100-year flows and the expected debris loads (e.g., LWD that might be mobilized).

MC-HU-20: Decrease coarse sediment delivery by implementing actions to work with:

- a. Landowners, other resource professionals, and agencies to identify areas of increased risk of mass wasting to enable avoidance or mitigation of triggering activities and
- b. Transportation system (state, county, and private road and rail) construction and maintenance personnel to identify risks and mitigation measures for mass wasting such as: replacing culverts with bridges, minimizing fill volumes on culverts, and constructing critical dips at culverts.

#### **5.2.1.1.2 Albion River Hydrologic Sub Area**

MC-AR-01: Place in-stream structures to improve gravel retention and habitat complexity. This is a high priority HSA.

MC-AR-02: Provide technical assistance and incentives to landowners in developing and implementing sediment reduction plans to meet requirements of the Clean Water Act TMDL. Make watersheds with an implementation schedule the highest priority.

MC-AR-03: Compare priorities for treatment of barriers through multi-agency collaborative efforts, such as the Fish Passage Forum.

MC-AR-04: Supplement on-going efforts to provide short-term and long-term benefits to coho salmon by restoring LWD and shade through:

- a. LWD placement;
- b. Management to promote conifer recruitment;
- c. Improvement of existing riparian zones through plantings, release of conifers, and control of alders, blackberries, and other competitors; and
- d. Incentives to landowners, such as technical support.

MC-AR-06: After genetic analysis, consider Albion River coho for use as broodstock for reestablishing coho salmon populations in other Mendocino coastal streams.

MC-AR-11: The Coho Recovery Team encourages agencies and landowners to limit the use of non-surfaced roads in the winter or improve road conditions to reduce adverse impacts to coho streams.

MC-AR-12: Conduct comprehensive sub basin erosion control “storm proofing” combined with installation of LWD into streams with significant populations of spawning and rearing coho salmon.

MC-AR-13: Modify stream barriers to allow fish passage while maintaining LWD.

#### **5.2.1.1.3 Big River Hydrologic Sub Area**

MC-BR-01: To minimize and reduce the effects of water diversions, take actions to improve State Water Resources Control Board (SWRCB) coordination with other agencies to address season of diversion, off-stream reservoirs, bypass flows protective of coho salmon and other anadromous salmonids and natural hydrograph, and avoidance of adverse impacts caused by water diversion, including funding of assessment

and GIS mapping of water diversions and determination and monitoring of Fish and Game Code Section 1600 Program compliance related to water diversions.

MC-BR-02: Target Big River for enhancement of in-stream habitat by installation of LWD.

#### **3.2.1.1.4 Garcia River Hydrologic Sub Area**

MC-GA-01: Acknowledge that a comprehensive approach to watershed planning is best.

MC-GA-02: Reestablish connectivity of North Fork Garcia to the mainstem.

MC-GA-07: Consider a pilot project of placing salmon carcasses in the form of disease free, Bio Blocks™ in the South Fork Garcia to provide a nutrient source for young salmonids in the place of currently scarce, native spawning salmon. Ideally this would have a monitoring element.

MC-GA-08: Study the Garcia River estuary using the Garcia River Estuary Enhancement Feasibility Study as well as new information to consider restoring estuary functions that would benefit coho salmon.

MC-GA-12: Work with landowners to plant riparian zones of Blue Waterhole, Inman Creek, and Pardaloe Creek with the goal of reducing instream temperatures and inputs into the Garcia mainstem, and long-term conifer LWD contribution.

MC-GA-13: The Coho Recovery Team encourages agencies and landowners to limit the use of non-surfaced roads in the winter or improve road conditions to reduce adverse impacts to coho streams.

MC-GA-14: Widen stream buffer zones through rules changes, habitat conservation plans, acquisition, or easements.

MC-GA-16: Excavate a geomorphically designed channel in lower North Fork Garcia, which currently goes subsurface in the summer months, stranding thousands of salmonids. Young salmonids should be rescued until the restoration project is undertaken.

MC-GA-17: Work with landowners to plant conifers/redwoods in the lower mainstem Garcia from Eureka Hill Road bridge to Windy Hollow Road with the goal of reducing stream temperature, providing bank stability and long-term LWD. Note the lower mainstem is currently seeing a reemergence of steelhead spawning and rearing life history. Reductions of mainstem temperature to suitable coho range would be a very favorable development.

MC-GA-18: Consider projects to open logjam migration barriers while maintaining LWD in the North Fork, South Fork and Fleming Creek.

MC-GA-19: Complete the remaining 25% of erosion control sites, identified in the South Fork Garcia by the Trout Unlimited North Coast Coho Project.

MC-GA-20: Consider stocking coho in the South Fork Garcia after habitat shows suitability. Note: a small number of coho were found in the South Fork in 2002 for the first time since 1996. In ongoing monitoring shows there is a zero return year, planting should occur in order to establish that year class and not on top of wild population.

MC-GA-21: Place large woody debris in: Inman and Signal creeks, the mid reaches of the South Fork Garcia and the North Fork Garcia.

MC-GA-25: Plant redwoods where necessary with landowner cooperation in the lower seven miles of the Garcia mainstem between Eureka Hill Road and Windy Hollow Road for long term LWD recruitment and reduction of instream temperatures, which are now close to being suitable for coho salmon.

#### **5.2.1.1.5 Navarro River Hydrologic Sub Area**

MC-NA-03: Fund a study of nutrient enrichment of streams. One component could be placing salmon carcasses in the form of disease free, Bio Blocks™ in the Little North Fork Navarro to provide a nutrient source for young salmonids in the place of currently scarce, native spawning salmon.

MC-NA-04: Supplement on-going efforts to provide short-term and long-term benefits to coho salmon by restoring LWD and shade through:

- a. LWD placement;
- b. Management to promote conifer recruitment;
- c. Improvement of existing riparian zones through plantings, release of conifers, and control of alders, blackberries, and other competitors; and
- d. Incentives to landowners, such as technical support.

MC-NA-05: Support acquisition by the Coastal Conservancy of the Stornetta Ranch.

MC-NA-06: Make enforcement of pertinent laws and codes concerning illegal and unpermitted dams and diversions a high priority for action. Ongoing education and incentives and assistance with water conservation are called for.

MC-NA-07: Comprehensive, sub basin wide, erosion control and LWD installation is being implemented by the Mendocino Redwood Company in partnership with the Department of Fish and Game through TU's North Coast Coho Project in the

Little North Fork. This approach of “storm proofing” key sub basins needs to be fully implemented in the key sub basins of : Flynn, Dutch Henry, John Smith, Minnie, Horse Camp and German Creeks. These tributaries have been identified as high priority in the Navarro River Restoration Plan.

MC-NA-10: Protect and enhance riparian buffer zones through habitat conservation plans, acquisition, and easements where necessary to protect coho salmon.

MC-NA-11: The Coho Recovery Team encourages agencies and landowners to limit the use of non-surfaced roads in the winter or improve road conditions to reduce adverse impacts to coho streams.

MC-NA-12: Work with landowners as necessary to carry out riparian and upslope planting projects to: reduce stream temperatures, provide long term large woody debris, bank and upslope stability.

MC-NA-14: Illegal “mining” of LWD continues to occur in the lower Navarro mainstem. Enforcement is needed.

#### **5.2.1.1.6 Noyo River Hydrologic Sub Area**

MC-NO-02: Investigate the role of the Pudding Creek Dam impoundment in coho migration and freshwater survival rate; repair dam as appropriate.

MC-NO-03: The Noyo River should be a high priority for monitoring activities.

MC-NO-04: Request that Mendocino County develop a plan related to water quality from sediment reduction measures on Sherwood Road and implement the measures.

MC-NO-05: Support funding to address barriers to passage on the California Western Railway right-of-way.

MC-NO-06: Evaluate the biological justification for the egg-taking station on the South Fork Noyo River.

#### **5.2.1.1.7 Gualala River Hydrologic Sub Area**

MC-GU-02: Complete comprehensive assessment/implementation of erosion control measures in entire North Fork basin.

MC-GU-03: Enforce existing, SWRCB/CDFG, bypass flow, permit conditions of North Gualala Water Company diversion on North Fork Gualala. The North Fork Gualala provides an important source of coldwater input to lower mainstem and estuary (Higgins, Keegan Estuary Study).

MC-GU-08: Utilize the Gualala River Steelhead Rescue Rearing Project to save coho found in dewatering reaches such as McGann's Gulch. Project may have additional uses for future reintroduction of coho into suitable Gualala tributaries.

MC-GU-11: Enforce all pertinent codes relating to summer dams and diversions to provide adequate year round flows and fish passage. Baseline flow (hydrograph) studies are needed.

MC-GU-12: Protect and enhance riparian buffer zones through habitat conservation plans, acquisition, and easements where necessary to protect coho salmon.

MC-GU-13: Take a critical look at emerging conversion of timberland and oak woodland in the Gualala River.

#### **5.2.1.1.8 Ten Mile Hydrologic Sub Area**

MC-TM-01: Complete implementation of erosion control sites identified in Hawthorne Campbell, DFG, and TU North Coast Coho Project on North Fork Ten Mile. Encourage similar projects in other coho sub basins.

MC-TM-02: Protect and enhance riparian buffer zones through habitat conservation plans, acquisition, and easements where necessary to protect coho salmon.

MC-TM-03: The Recovery Team encourages agencies and landowners to limit the use of non-surfaced roads in the winter to improve road conditions to reduce adverse impacts to coho streams.

#### **5.2.1.2 Non Consensus Recommendations**

##### **5.2.1.2.1 HU**

MC-HU-02: Encourage Mendocino County to adopt additional county ordinances regulating development. (Yes=13; No=6; Abstain=0)

*Alternate MC-HU-02: Encourage local jurisdictions (counties) to update general plans to include measures to protect coho salmon.*

MC-HU-04: Mendocino County to adopt a grading ordinance. (Yes=16; No=2; Abstain=1)

MC-HU-21: Decrease fine sediment loads by actions to:

- a. Abandon riparian road systems and/or upgrade roads and skid trails that deliver sediment to adjacent water courses;
- b. Limit winter use of unsurfaced roads and recreational trails by unauthorized and impactive uses;

- c. Minimize density of water course crossing of roads and trails;
- d. Encourage out-sloping roads with rolling dips as the standard, wherever feasible, for all roads, and especially unsurfaced roads;
- e. Work with landowners to identify and modify practices such as road maintenance that generate fine sediment;
- f. Avoid creating new upslope sediment sources (e.g., road surface erosion); and
- g. Avoid or minimize land ownership fragmentation and conversion to more intensive uses. (Yes=14; No=4; Abstain=0)

*Alternate MC-HU-21: Work with landowners and other entities to decrease fine sediment loads by actions to:*

*Abandon riparian road systems and/or upgrade roads and skid trails that deliver sediment to adjacent water courses; limit winter use of unsurfaced roads and recreational trails by unauthorized and impactive uses; minimize density of water course crossing of roads and trails; and encourage out-sloping roads with rolling dips as the standard, wherever feasible, for all roads, and especially unsurfaced roads.*

#### **5.2.1.2.2 Albion River Hydrological Sub Area**

MC-AR-07: Protect and enhance riparian buffer zones through habitat conservation plans, acquisition, and easements where necessary to protect coho salmon. (Yes = 15; No = 0; Abstain = 2)

MC-AR-08: Provide technical assistance and incentives to Albion River landowners in developing and implementing sediment reduction plans to meet the requirements of the Clean Water Act TMDL. For example, financial incentives to implement plans ahead of the required timelines would be of great benefit. Staff (NRCS, Water Quality, UC AG Extension) dedicated to developing comprehensive “Ranch Plans” for smaller landowners are needed. (Yes=15; No=2; Abstain=2)

MC-AR-10: Encourage coordination of large wood placement in streams as part of logging operations and road upgrades to maximize size, quality, and efficiency of effort. (Yes= 18, No=0; Abstain=1)

#### **5.2.1.2.4 Garcia River Hydrological Sub Area**

MC-GA-04: After genetic analysis, consider Albion River coho for use as broodstock for reestablishing coho salmon populations in the Garcia River. (Yes = 14; No = 0; Abstain = 2)

MC-GA-05: Provide technical assistance and incentives to Garcia River landowners in developing and implementing sediment reduction plans to meet the requirements of the Clean Water Act TMDL. For example, financial incentives to implement plans ahead of the required timelines would be of great benefit. Staff, (NRCS,

Water Quality, UC AG Extension) dedicated to developing comprehensive “Ranch Plans” for smaller landowners are needed. (Yes=16; No=1; Abstain=2)

MC-GA-06: The comprehensive approach of sub basin erosion reduction with a simultaneous instream LWD placement with on site heavy equipment as was practiced by Mendocino Redwood Company, Trout Unlimited and Pacific Watershed Associates in the South Fork Garcia should serve as a model for other sub basin restoration efforts in the Garcia (and other coastal) River(s). (Yes=18; No=1; Abstain= 0)

*Alternate language: Utilize as a model for erosion reduction and LWD placement, the comprehensive approach practiced in the South Fork of the Garcia.*

MC-GA-09: Encourage coordination of large wood placement in streams as part of logging operations and road upgrades to maximize size, quality, and efficiency of effort. (Yes=18; No=0; Abstain=1)

MC-GA-11: Recognize that these tributaries provide cold water input to the Garcia mainstem: Hathaway, North Fork, Rolling Brook, Mill Creek (lower Garcia River), South Fork, Signal, Mill Creek (upper Garcia River). (Yes=18; No=0; Abstain=1)

#### **5.2.1.2.5 Navarro River Hydrological Sub Area**

MC-NA-08: Provide technical assistance and incentives to Navarro River landowners in developing and implementing sediment reduction plans to meet the requirements of the Clean Water Act TMDL. For example, financial incentives to implement plans ahead of the required timelines would be of great benefit. Staff, (NRCS, Water Quality, UC AG Extension) dedicated to developing comprehensive “Ranch Plans” for smaller landowners are needed. (Yes=16; No=1; Abstain=2)

MC-NA-11: Encourage coordination of large wood placement in streams as part of logging operations and road upgrades to maximize size, quality, and efficiency of effort. (Yes=18; No=0; Abstain=1)

#### **5.2.1.2.6 Noyo River Hydrological Sub Area**

There are no non consensus recommendations for the Noyo River.

#### **5.2.1.2.7 Ten Mile Hydrological Sub Area**

MC-TM-05: Provide technical assistance and incentives to Ten Mile River landowners in developing and implementing sediment reduction plans to meet the requirements of the Clean Water Act TMDL. For example, financial incentives to implement plans ahead of required timelines would be of great benefit. Staff, (NRCS, Water Quality, UC AG Extension) dedicated to developing comprehensive “Ranch Plans” for smaller landowners are needed. (Yes=17; No=1; Abstain=1)

MC-TM-06: Encourage coordination of large wood placement in streams as part of logging operations and road upgrades to maximize size, quality, and efficiency of effort. (Yes=18; No=0; Abstain=1)

#### **5.2.1.2.7 Gualala Hydrological Sub Area**

MC-GU-04: Investigate expanding North Fork and Hop Creek riparian zones through acquisition/easement from willing participants. (Yes = 14; No = 0; Abstain = 2)

MC-GU-05: Encourage coordination of large wood placement in streams as part of logging and road upgrades to maximize size, quality, and efficiency of effort. (Yes=18; No=0; Abstain=1)

MC-GU-07: Consider Haupt Creek for acquisition/easement of old growth redwood sections from willing participants. (Yes = 13; No = 0; Abstain = 3)

MC-GU-09: The recovery goal should be to restore conditions in all tributaries that historically contained coho salmon. (Yes = 16; No = 0; Abstain = 1)

MC-GU-10: Phase out clear-cutting with burning and multiple applications of herbicide as a management prescription. (Yes = 10; No = 4; Abstain = 2)

### **5.2.2 Russian River Hydrological Unit**

#### **5.2.2.1 Consensus Recommendations**

##### **5.2.2.1.1 HU**

RR-HU-04: Assess, prioritize, and develop plans to treat barriers to passage.

RR-HU-06: Assess riparian canopy and impacts of exotic vegetation (especially *Arundo donax*), prioritize, and plan riparian habitat reclamation and enhancement programs.

RR-HU-07: Implement Sotoyome Resource Conservation District's Fish Friendly Farming Program within Sonoma and Mendocino Counties.

RR-HU-08: Implement Coho Captive Broodstock Program:

- a. Continue genetic analysis of source stocks for coho broodstock. Recent genetic data produced by the Bodega Marine laboratory (BML) and the NMFS laboratory at Santa Cruz identifies that source populations in the Russian River and Marin County are genetically distinct. Further analysis of other broodstock year classes needs to be completed by NMFS to weigh the

risks of inbreeding and outbreeding depression in the captive broodstock program. A review of stocking history may help determine how locally adapted stocks can be utilized to enhance variability and reduce risk of extirpation. This review should be completed before mating protocols are finalized and implemented (CDFG has completed this review in the Russian, and the review for Bodega-Marin Coastal HU is underway);

- b. Stock first priority barren streams. First priority streams are streams CDFG has identified with good habitat condition resulting from complete restoration or unimpaired functions and include Felta and Mill Creeks (tributary to Dry Creek west of Healdsburg), Freezeout, Willow and Sheephouse Creeks (near Duncan Mills), and Ward Creek (tributary to Austin Creek). Identify additional streams that may be suitable for stocking as restoration occurs;
- c. Develop and implement a monitoring and evaluation program to adaptively manage the coho broodstock program. Coordinate and implement a monitoring and evaluation program that would meet high and medium priority monitoring objectives as outlined in the coho HGMP;
- d. Develop, implement, and evaluate experimental release protocols for the captive broodstock program;
- e. Review and revise long-term hatchery program goals based on results of the monitoring and evaluation program implemented in the experimental captive broodstock program; and
- f. Develop and implement a long-term monitoring program for coho abundance trends in suitable index streams that have recent (within 8 years) coho presence or that will be supplemented with the captive broodstock program (CDFG has contracted with Humboldt State University to develop these protocols in coordination with NMFS).

RR-HU-09: Review and develop preferred protocols for Pierce' Disease control that would maintain a native riparian corridor and develop an outreach program.

RR-HU-10: Through the RRHU, advise Sonoma County to consider recommendations to offset impacts from county policies and operations, as developed by the FishNet program in their report, "Effects of County Land Use Policies and Management Practices on Anadromous Salmonids and Their Habitat (Harris, et al, 2001). Advise Mendocino County to consider recommendations to offset impacts from county policies and operations, as developed by the Five County effort.

RR-HU-12: Restore fish passage at county structures on all coho streams, as identified in the Russian River Fish Passage Assessment report (Taylor, March, 2003). Expand inventories as needed to use a comprehensive watershed approach. Integrate fish passage projects at county facilities with fish passage improvements involving other landowners, through targeted coho watersheds.

RR-HU-13: Sonoma County Public Works and Parks Departments should adopt and implement the best management practices developed in the FishNet 4C manual: Guidelines for Protecting Aquatic Habitat and Salmon Fisheries for County

Road Operations and Maintenance (Draft December 2002) after review and approval by state regulatory agencies is completed. Mendocino County Public Works should adopt the Five County Roads manual after review and approval by state regulatory agencies is completed.

RR-HU-15: Sonoma and Mendocino County planning and public works departments should promote alternatives to conventional bank stabilization for public and private projects, including bioengineering techniques.

RR-HU-16: Sonoma and Mendocino County and neighboring cities should review and revise as needed development set-backs, for adequacy in protecting critical coho streams. Promote streamside conservation protections including conservation easements, setbacks and riparian buffers.

RR-HU-17: Sonoma and Mendocino County Public Works, Transportation Department, and Parks and Open Space Districts should inventory, evaluate and fix problem roads which systematically contribute sediment into critical coho streams.

RR-HU-18: Support efforts and develop county programs to protect and increase in-stream flows for anadromous fish. Sonoma and Mendocino counties should have policies to minimize impervious surfaces and promote surface water retention. The counties should participate in regional water management planning through the General Plan process and in other venues as appropriate.

#### **5.2.2.1.2 Russian River Mainstem**

RR-MS-02: Investigate the opportunity to operate the estuary as a natural system, allowing periods of closure to benefit salmonid rearing, and appropriate timing of opening to benefit salmonid migration/emigration.

RR-MS-03: Explore adjusting the operation of Mirabel Dam within confines of existing water rights and legal uses to improve passage of downstream migrants.

RR-MS-04: Evaluate the feasibility of bypassing large dams.

RR-MS-05: Update temperature analyses below Coyote Dam and Warm Springs Dam and review dam management.

RR-MS-06: In upper mainstem, prioritize and plan habitat restoration programs and projects.

#### **5.2.2.1.3 Guerneville Hydrologic Sub Area**

RR-GU-01: Encourage local agencies to implement recommendations of completed non-point source sediment assessments.

RR-GU-02: Assess, prioritize, and develop plans to treat sources of excess sediment in areas not covered by GHSA-1.

RR-GU-03: Supplement first priority barren streams with the coho broodstock program. Within the Guerneville HSA, these streams include: Willow, Sheephouse, Freezeout, Dutchbill, and Green Valley Creeks.

RR-GU-04: Acquire from willing sellers fee title and conservation easements in key coho salmon habitat.

RR-GU-06: Identify water diverters; request that SWRCB review and/or modify water use based on the needs of fish and authorized diverters. Monitor and identify problems and prioritize needs in terms of changes to water diversion, in particular Green Valley and Dutchbill creeks, that have been identified as current or potential coho streams that go dry in some years.

RR-BU-07: Assess, prioritize, and develop plans to treat barriers to migration and improve fish passage. Fish passage assessments have been conducted and recommendations should be implemented for barrier modifications.

#### **5.2.2.1.4 Austin Creek Hydrological Sub Area**

RR-AC-01: Encourage Sonoma County to implement recommendations of completed non-point source sediment assessments.

RR-AC-02: Assess, prioritize, and develop plans to treat sources of excess sediment in areas not covered by ACHSA-1.

RR-AC-03: Supplement first priority barren streams with the coho broodstock program, such as Ward Creek. Identify additional streams that may be suitable for stocking as restoration occurs.

RR-AC-05: Assess, prioritize, and develop plans to treat barriers to migration and improve fish passage. Fish passage assessments have been conducted and recommendations should be implemented for barrier modifications.

#### **5.2.2.1.5 Warm Springs Hydrological Sub Area**

RR-WS-01: Develop plans to improve riparian vegetation in Dry Creek and its tributaries. Develop and implement riparian improvements through land-use planning, use of conservation easements, and implementation of Sotoyome Resource Conservation District's Fish Friendly Farming Program.

RR-WS-03: Supplement first priority barren streams with the coho broodstock program, such as Mill and Felts Creeks. Identify additional streams that may be suitable for stocking as restoration occurs.

RR-WS-04: Review and develop preferred protocols for Pierce's Disease Control that would maintain a native riparian corridor and develop an outreach program.

RR-WS-05: Assess, prioritize, and develop plans to treat barriers to migration and improve fish passage.

RR-WS-06: Assess, prioritize, and develop plans to treat sources of excess sediment.

RR-WS-07: Increase habitat structure and complexity in Dry Creek to enhance habitat diversity, and provide depositional areas for spawning gravels for coho salmon (i.e., place large woody debris or large boulder structures).

#### **5.2.2.1.6 Mark West Creek Hydrological Sub Area**

RR-MW-01: Reduce habitat fragmentation and implement riparian improvements through land-use planning and use of conservation easements.

RR-MW-02: Develop and implement plans to improve in-stream habitat conditions.

RR-MW-03: Assess, prioritize, and develop plans to treat barriers to migration and improve fish passage. Fish passage assessments have been conducted and recommendations should be implemented for barrier modifications.

RR-MW-04: Assess, prioritize, and develop plans to treat sources of excess sediment.

#### **5.2.2.1.7 Santa Rosa Creek Hydrological Sub Area**

RR-SR-03: Assess, prioritize, and develop plans to treat sources of excess sediment.

RR-SR-05: Assess, prioritize, and develop plans to treat barriers to passage. Pristine habitat occurs in the upper basin and is under State Parks ownership. Fish passage assessments have been conducted and recommendations should be implemented for road culverts and other barrier modifications in Santa Rosa Creek. Channel enhancement projects are being implemented in lower Santa Rosa Creek. A fish ladder project is being implemented on Matanzas Creek.

#### **5.2.2.1.8 Forsythe Creek Hydrological Sub Area**

RR-FO-01: Improve migration and summer/overwintering habitat through riparian restoration and erosion control. Coho salmon may utilize tributaries in this watershed. Good habitat conditions exist in Jack Smith and Eldrige Creeks. Habitat and

passage improvements in other portions of the watershed would potentially benefit coho, such as bioengineering projects and grazing management practices that protect riparian corridors.

RR-FO-02: Assess, prioritize, and develop plans to treat sources of excess sediment.

RR-FO-03: Assess, prioritize, and develop plans to treat barriers to migration and improve fish passage. Passage improvements are being developed and implemented, for example, passage past Mumford Dam and passage improvements on Mariposa Creek.

#### **5.2.2.1.9 Geyserville Hydrological Sub Area**

RR-GE-02: Assess, prioritize, and develop plans to treat barriers to migration and improve fish passage.

RR-GE-03 Assess, prioritize, and develop plans to treat sources of excess sediment.

#### **5.2.2.2 Non Consensus Recommendations**

##### **5.2.2.2.1 HU**

RR-HU-02: Encourage the RWQCB to upgrade the Basin Plan to benefit salmonids. (Yes = 16; No = 0; Abstain = 1)

RR-HU-03: Identify water diverters; request that SWRCB review and/or modify water use based on the needs of coho salmon and authorized diverters. (Yes = 16; No = 0; Abstain = 1)

RR-HU-11: Sonoma and Mendocino Counties should develop grading and erosion control standards supported by a grading ordinance, to minimize sediment impacts to anadromous coho streams. (Yes=16; No=2; Abstain=1)

RR-HU-19: Sonoma and Mendocino counties should expand current review of applications for discretionary land use approvals and minor timberland conversion permits to better identify and mitigate fish habitat impacts. Minor timberland conversions should be subject to CEQA review. (Yes = 11; No = 2; Abstain = 3)

##### **5.2.2.2.2 Russian River Mainstem HSA**

RR-MS-01: Manage summer flows in the mainstem of the Russian River, to the benefit of rearing salmonids and the estuary, while ensuring that all existing legal water uses and rights are accounted for. (Yes=11; No=2; Abstain=5)

#### **5.2.2.2.3 Guerneville Hydrological Sub Area**

RR-GE-01: Maintain and improve riparian condition and water temperature through land use planning and conservation easements. (Yes = 14; No = 0; Abstain = 2)

#### **5.2.2.2.4 Austin Creek Hydrological Sub Area**

There are no non consensus recommendations for Austin Creek.

#### **5.2.2.2.4 Warm Springs Hydrological Sub Area**

RR-WS-02: Support implementation of measures to decrease Dry Creek flows during summer to provide habitat for coho. (Yes = 14; No = 0; Abstain = 2)

#### **5.2.2.2.5 Mark West Creek Hydrological Sub Area**

There are no non consensus recommendations for Mark West Creek.

#### **5.2.2.2.6 Santa Rosa Creek Hydrological Sub Area**

RR-SR-01: Encourage Sonoma County and the City of Santa Rosa to reduce habitat fragmentation and implement riparian improvements through land-use planning and use of conservation easements. (Yes = 16; No = 0; Abstain = 1)

RR-SR-02: Seek solutions to problems caused by channelization. (Yes = 15; No = 0; Abstain = 1)

RR-SR-04: Identify water diverters; request that SWRCB review and/or modify water used based on the needs of fish and authorized diverters. (Yes = 15; No = 0; Abstain = 1)

#### **5.2.2.2.6 Forsythe Creek Hydrological Sub Area**

There are no non consensus recommendations for Forsythe Creek.

#### **5.2.2.2.7 Geyersville Hydrological Sub Area**

There are no non consensus recommendations for Geyersville.

### **5.2.3 Bodega/Marin Coastal Hydrological Unit**

#### **5.2.3.1 Consensus Recommendations**

##### **5.2.3.1.1 HU**

BM-HU-01: Implement best management practices for road projects. Support Sonoma and Marin County Departments of Public Works, Caltrans, and other appropriate agencies to implement and maintain environmentally sound upgrades, modifications, and new construction of road projects, including culverts and stream crossings.

BM-HU-02a: Continue to implement erosion control projects that were assessed and inventoried in sediment assessment plans completed throughout watersheds of the HU.

BM-HU-02b: Monitor the effectiveness and maintenance of watershed restoration projects (e.g., Sonoma County Coastal Wetland Enhancement Plan; Walker Creek Watershed Enhancement Plan; San Geronimo Creek Watershed Sediment Source Sites Assessment and Evaluation; Lagunitas Creek Final Sediment and Riparian Management Plan; and Watershed Assessment and Erosion Prevention Planning Project for the Redwood Creek Watershed).

BM-HU-03: To avoid and minimize the adverse effects of water diversion on coho salmon, improve the coordination between State Water Resources Control Board (SWRCB), DFG, and other agencies, to promote flows that will provide for a natural hydrograph and to address protective conditions, such as by-pass flows, season of diversion, and off-stream storage.

BM-HU-04: Encourage local governments to incorporate protection of coho in flood management activities.

BM-HU-05: Encourage counties to implement performance standards in Stormwater Management Plans.

BM-HU-06: On private and public lands, address issues of low flow by increasing riparian protection and restoration, increasing sediment control, and employing best management practices that encourage permeability and infiltration.

BM-HU-07: Continue outreach, education, and enforcement related to household hazardous waste and hazardous materials spills in creeks.

BM-HU-08: Encourage the cultivation and availability of locally indigenous native plants for use in restoration and bank stabilization.

BM-HU-09: Investigate opportunities for restoring historic coho runs in identified watersheds.

BM-HU-10: Continue to support landowners and the Marin RCD to restore riparian zones and manage livestock to increase stream protection and soil retention. Encourage sustainable land management practices and control of sediment sources in agricultural zones.

BM-HU-11: Continue to support the many active watershed groups in the HU, encouraging a focus on coho salmon restoration where appropriate.

BM-HU-12: Implement fish passage improvements as identified in inventories conducted by SPAWN, Taylor and Associates, Trout Unlimited and the National Park Service. Expand inventories as needed to approach comprehensive fish passage.

BM-HU-13: County planning, public works, open space, and fire departments should continue to implement FishNet4C priority goals for this region, which include: 1) enact and enforce Marin County Streamside Conservation Area Ordinance, 2) adopt and implement FishNet Road Maintenance Manual: Guidelines for Protecting Aquatic Habitat and Salmon Fisheries for County Operations and Maintenance, 3) systematically work to restore fish passage at county facilities, and 4) address issues of sediment from roads through restoration and education.

#### **5.2.3.1.2 Salmon Creek Hydrological Sub Area**

BM-SA-01: Coordinate efforts of involved agencies in review of plans for timber harvest and vineyard conversion. Support appropriate entities in development and implementation of standards and best management practices for agriculture to reduce pathogen, nutrient, and sediment loadings to creeks.

BM-SA-02: Continue to implement erosion control projects that were assessed and inventoried in sediment assessment plans, and monitor effectiveness and maintenance of past and current watershed restoration projects. Augment surveys as necessary.

BM-SA-03: Continue to fund and support landowners to restore riparian zones and manage livestock to increase stream protection and soil retention. Encourage sustainable land management practices and control sediment sources in agricultural zones.

BM-SA-04: Implement recommendations of watershed plans consistent with the Coho Salmon Recovery Strategy.

BM-SA-05: Encourage vineyard operations to be designed to ensure adequate protection of coho habitat attributes, including riparian corridors, in-stream flow, and water quality.

#### **5.2.3.1.3 Walker Creek Hydrological Sub Area**

BM-WA-01: Continue to fund and support landowners and the Marin RDC to restore riparian zones and manage livestock to increase stream protection and soil retention. Address water quality and nutrient loading issues by encouraging sustainable land management practices, controlling sediment sources, protecting riparian zones and employing best management practices that encourage permeability and infiltration.

BM-WA-02: Continue to support active watershed groups in the HSA, encouraging a focus on coho salmon restoration where appropriate.

BM-WA-03: Assess the water temperature regime during the summer season for three to five years to determine the role of water temperature as a limiting factor for coho salmon production.

BM-WA-04: Support landowners and the Marin RCD in projects to improve channel conditions and restore natural channel geomorphology, including side channels and dense contiguous riparian vegetation.

BM-WA-05: Implement high priority fishery enhancement projects for the reduction of sediment delivery and the restoration of riparian corridors as listed in the Walker Creek Enhancement Plan (2001).

BM-WA-06: Look for opportunities to increase woody debris retention and recruitment.

BM-WA-07: Encourage Marin Municipal Water District to continue to assess the release of water from Soulejule Reservoir to develop the optimum release for coho salmon.

#### **5.2.3.1.4 Lagunitas Creek Hydrological Sub Area**

BM-LA-01: Use recommendations of existing sediment source surveys to implement projects to restore habitat of coho salmon. Augment surveys as necessary.

BM-LA-03: Coordinate with appropriate agencies to restore coho salmon passage at barriers identified by Ross Taylor, SPAWN, and others. Complete any needed surveys of migration barriers. Expand inventories as needed to approach comprehensive fish passage.

BM-LA-04: Investigate opportunities for restoring runs in historic coho salmon watersheds.

BM-LA-05: Encourage MMWD to commit ongoing resources and support of stewardship in the basin beyond the 10-year mitigation order that expires in 2007 to include: riparian enhancement and protection, sediment source reduction, habitat typing

and surveying, coho salmon surveys and counts, water conservation, outreach and education, effectiveness monitoring of projects, planning and assessment of potential restoration projects to benefit coho.

BM-LA-06: Provide incentives for septic inspection, repair, and replacement to reduce aquatic pollution.

BM-LA-07: Assess, evaluate, and implement restoration actions in Nicasio Creek to improve water quality.

BM-LA-08: Develop a monitoring and assessment program for the estuarine reaches of Lagunitas Creek, looking at impacts to coho rearing and outmigration.

BM-LA-09: Consider restoration of Olema Marsh, Bear Valley Creek, and the mouth of Olema Creek, to benefit coho. The restoration should provide rearing habitat refuge during high flows, habitat protection, and food production. Hydrologic connectivity between marshes should be restored.

BM-LA-11: Throughout the Lagunitas drainage, work with private landowners to encourage biotechnical bank stabilization, riparian protections, woody debris retention, and timing of water withdrawals to help protect fisheries.

BM-LA-12: In the San Geronimo sub-watershed, continue public outreach and education for private landowners, residents, commercial, public utility and county workers regarding best management practices to control erosion, protect riparian vegetation, retain woody debris, and minimize disturbance to coho salmon from pets.

BM-LA-13: In the San Geronimo sub-watershed, encourage removal of non-native fish species from stock ponds where they are a threat to coho salmon.

BM-LA-14: In the San Geronimo sub-watershed, Marin County should determine a policy for reviewing new development projects and impacts to the creek from new well construction. The County should consider adopting recommendations for well developments from the Local Coastal Plan.

BM-LA-15: Encourage the National Park Service to continue practices to benefit coho salmon, including sediment control projects, locating well constructed fences out of riparian zones, repairing headcut gullies as possible, and implementing rotational grazing in locations to minimize erosion and impacts to the creek.

BM-LA-16: Encourage Marin Municipal Water District and the County of Marin to continue to implement and coordinate their Watershed Protection Agreement Program for additional water hook-ups in Nicasio and San Geronimo sub watersheds.

BM-LA-17: Look for opportunities to restore natural channel form and function in the upper watershed to protect summer flows into San Geronimo Creek.

BM-LA-18: Encourage continuation of riparian protection and sediment control projects. Focus on working with landowners to manage livestock to protect riparian areas, and to implement erosion control projects on state and federal parkland and on private lands, e.g. Devil's Gulch.

BM-LA-21: Continue public outreach and education for private landowners, residents, commercial, public utility and county workers regarding best management practices to control erosion, protect riparian vegetation, retain woody debris, and minimize disturbance to coho salmon from pets.

BM-LA-23: Determine policy for reviewing new development projects and well construction. Consider adopting recommendations for well developments from the Coastal Plan.

#### **5.2.3.1.5 Bolinas (Redwood Creek) Hydrological Sub Area**

BM-BO-01: Implement recommendations of completed sediment source surveys. Supplement surveys as necessary.

BM-BO-02: Continue to support restoration efforts on Bolinas Lagoon and Big Lagoon to benefit coho salmon during all life phases and seasons.

BM-BO-03: Work with landowners and appropriate agencies to manage low summer flows for coho salmon, on a watershed basis. Provide support and incentives to protect both fisheries flows and agriculture, including timing of withdrawals, construction of off-site storage facilities, water conservation practices and riparian zone protections. Conduct outreach and education for landowners on these practices.

BM-BO-04: Look for opportunities to increase woody debris recruitment and retention.

BM-BO-05: Provide incentives for septic inspection, repair and replacement to improve water quality in both streams and lagoons.

BM-BO-06: Encourage the National Park Service to provide additional space for Stinson Beach Water District for off-stream storage to protect coho in Easkoot Creek.

BM-BO-07: Identify, prioritize, and treat fish passage barriers in the Redwood Creek drainage.

BM-BO-08: Identify and resolve problems related to trails in these watersheds, including location of trails and access road and trail construction and maintenance.

### **5.2.3.2 Non Consensus Recommendations**

There are no non-consensus recommendations for the Bodega-Marín Hydrological Unit or any hydrological sub area within the unit.

## **5.2.4 San Francisco Bay Hydrological Unit**

### **5.2.4.1 Consensus Recommendations**

#### **5.2.4.1.1 HU**

SF-HU-01: Habitat suitability evaluations in the San Francisco Bay Area should include coho salmon.

SF-HU-02: Where appropriate, apply statewide recommendations to suitable streams in the San Francisco Bay.

#### **5.2.4.1.2 San Rafael Hydrological Sub Area**

SF-SR-01: Work to restore coho habitat, especially in Arroyo Corte Madera del Presidio and Corte Madera Creek.

### **5.2.4.2 Non Consensus Recommendations**

There are no non consensus recommendations in the San Francisco Bay HU or its hydrological sub area.

## **5.2.5 San Mateo Hydrological Unit**

### **5.2.5.1 Consensus Recommendations**

#### **5.2.5.1.1 HU**

SM-HU-01: Continue to operate MBSTP King Fisher Flat Hatchery under the guidance of NOAA Fisheries and DFG as a conservation hatchery to reintroduce missing or supplement very weak brood years.

SM-HU-02: To minimize and reduce the effects of water diversions on coho salmon, take actions to improve State Water Resources Control Board (SWRCB) coordination with other agencies to address season of diversion, off-stream reservoirs, bypass flows protective of coho salmon, and the natural hydrograph, and avoidance of adverse impacts caused by water diversion, including funding of assessment and GIS mapping of water diversions and determination and monitoring of Fish and Game Code Section 1600 Program compliance related to water diversions.

- SM-HU-03: Implement FishNet 4C priority actions that protect coho salmon:
- a. Continue to protect riparian zones within the Coastal Zone on coho streams according to Local Coastal Plan and Timber Harvest Plan prescriptions. Evaluate the need to apply coastal zone protections to non-coastal zone areas on coho streams;
  - b. Develop, adopt and implement written standards for routine operations and maintenance. Train staff in best management practices;
  - c. Conduct fish passage assessments and restore fish passage to coho salmon.
  - d. Conduct road assessments and address issues of sedimentation from county public works and parks roads and trails.
  - e. Promote alternatives to conventional bank stabilization for public and private projects.
  - f. Establish adequate spoils storage sites throughout the counties so that material from landslides and road maintenance can be stored safely away from anadromous streams. Coordinate these efforts with Caltrans.
  - g. Work to increase county enforcement of permit conditions and erosion control plans on development.

SM-HU-05: Support timberlands and agriculture and work to protect these rural landscapes from conversion to urbanization.

#### **5.2.5.1.2 San Gregorio Creek Hydrologic Sub Area**

SM-SG-01: Minimize take attributable to diversion of stream flow that is of three primary types: (1) reduced rearing habitat for juvenile coho salmon, (2) reduced flows necessary for smolt emigration, and (3) reduced flows necessary for adult immigration. This recommendation would develop and support alternatives to diversion of stream flow, where the alternatives may include operation of off-stream reservoirs, development of infrastructure necessary for conjunctive use of stream flow, and use of desalinated ocean water.

SM-SG-03: Conduct a comprehensive assessment of watershed processes (e.g., hydrology, geology, fluvial-geomorphology, water quality, vegetation), instream habitat, and factors limiting coho salmon production. Use the assessment results to develop a plan for restoration of coho salmon passage, in-stream habitat, and upslope erosion control, for implementation by cooperating landowners/managers.

SM-SG-04: Implement best management practices designed to reduce erosion of soil and consequential sedimentation of instream habitat attributable to roads (for example, practices described in the California Salmonid Stream Habitat Restoration Manual).

SM-SG-05: Implement best management practices designed to reduce bank erosion, water temperature, and removal of LWD by improving the form and function of the riparian forest. These BMPs include livestock exclusion fencing, reclamation and reconstruction of floodplain, and active revegetation.

SM-SG-06: Modify infrastructure (e.g., culverts, bridges, out-buildings) to reduce the threat of damage attributable to substantial accumulation of LWD.

#### **5.2.5.1.3 Ano Nuevo (Gazos Creek) Hydrologic Sub Area**

SM-AN-01: Implement the projects recommended as high priority to coho salmon in the Gazos Creek watershed restoration plan.

#### **5.2.5.2 Non Consensus Recommendations**

There are no non consensus recommendations for the San Mateo Coast hydrological unit or its hydrological sub areas.

### **5.2.6 Big Basin Hydrologic Unit**

#### **5.2.6.1 Consensus Recommendations**

##### **5.2.6.1.1 HU**

BB-HU-01: Continue to operate the MBSTP King Fisher Flat hatchery under the guidance of NOAA Fisheries and DFG as a conservation hatchery to reintroduce missing, or supplement very weak brood years. Support the funding to develop and implement a management plan. Operate the facility to accommodate recovery.

BB-HU-02: Provide education and training on coho-friendly water diversion practices to facilitate compliance with pertinent regulation (e.g., Fish and Game Code 1600 et. seq., CFPR 916.9, California Water Code, DFG – NOAA Fisheries guidelines).

BB-HU-03: Increase LWD recruitment and retention by modification of infrastructure where feasible (e.g., culverts, bridges, out-buildings, levees) to reduce the threat of damage to structures attributable to substantial accumulation of LWD. To provide fish passage, encourage funding authorities to allocate adequate resources to prioritize and upgrade culverts within the range of coho salmon to pass 100-year flows and the expected debris loads (e.g., LWD that might be mobilized).

BB-HU-04: Develop, facilitate, and support by-pass stream-flow requirements on all coho streams. Evaluate existing structures and apply to all future structures.

BB-HU-05: Implement the highest priority restoration projects in the watershed plans and implement coho related recommendations within the plans. Adjust on-going efforts based on results.

BB-HU-06: Complete a broad conjunctive-use feasibility study to focus on creative ways to better manage existing surface and groundwater resources in Santa Cruz County, including all cities and water districts, to better utilize groundwater storage and increase base flow at critical times. This would involve water sources under the control of Scotts Valley Water District, City of Santa Cruz, Soquel Water District, and San Lorenzo Water District.

BB-HU-07: Develop a Lagoon Management Plan that addresses the needs of coho.

#### **5.2.6.1.2 Davenport Hydrological Sub Area**

BB-DA-03: Improve the form and function of riparian vegetation in alluvial reaches by implementing established BMPs designed to reduce bank erosion, reduce water temperature, and reduce removal of LWD. These BMPs include, but are not limited to, livestock exclusion fencing, reclamation or reconstruction of floodplain, and active re-vegetation. Applies especially to Scott Creek.

BB-DA-04: Reduce erosion of soil and resulting sedimentation of in-stream habitat attributable to roads. Implement established BMPs, accounting for public safety standards, including, but not limited to, assessment procedures and a suite of road reconstruction prescriptions. Applies especially to Scott Creek.

BB-DA-05: Encourage State Parks to develop a log jam management plan for Waddell Creek. Log jams should be closely examined for fish passage and conservatively modified if absolutely necessary for coho passage.

#### **5.2.6.1.3 San Lorenzo River Hydrological Sub Area**

BB-SL-01: Reduce erosion of soil and resulting sedimentation of in-stream habitat attributable to roads. Implement adopted BMPs, accounting for public safety standards, including, but not limited to, assessment procedures and a suite of road reconstruction prescriptions. Applies especially to San Lorenzo River.

BB-SL-03: Evaluate the Felton Diversion Dam for impacts to coho.

BB-SL-04: Improve adult fish passage at locations named in the San Lorenzo River Enhancement Plan, the Santa Cruz Road Crossing and Salmonid Passage Assessment (Taylor, 2003) and other locations identified by DFG as being problematic. Implement the portions of these plans that are consistent with the recommendations of the Recovery Team and the Coho Salmon Recovery Strategy. The plans were prepared by Santa Cruz County under the terms of a CDFG-funded grant agreement.

#### **5.2.6.1.4 Aptos-Soquel Hydrologic Sub Area**

BB-AP-01: Implement elements of the Soquel Creek Watershed Restoration Plan consistent with the recommendations of the Recovery Team and the Coho Recovery Strategy. Specifically focus on projects recommended as high-priority in this coho-centric plan funded by CDFG and the Coastal Conservancy, and coordinated by Santa Cruz County Resource Conservation District. These projects include best management practices to reduce sedimentation of in stream habitat, preservation of base flow, restoration of flood plain and improvements to fish passage.

BB-AP-02: Explore and promote opportunities to assure diversion of stream flow (directly or indirectly) is consistent with perpetuation of Soquel Creek coho salmon. Among others, these opportunities include amendments to the adjudication, water conservation, shallow recharge opportunities, shallow-well gauging, deep-well gauging, stream-gauging, and self-monitoring of diversions. A recommended way to accomplish this is through a watershed council or CRIMP.

#### **5.2.6.2 Non Consensus Recommendations**

##### **5.2.6.2.1 HU**

There are no non consensus recommendations in the Big Basin HU.

##### **5.2.6.2.2 Davenport Hydrological Sub Area**

BB-DA-01: Recommend that DFG work with the SWRCB to develop and enforce stream flow bypass requirements for diversions from the alluvial reaches of mainstem Scott Creek, Big Creek, Mill Creek, and San Vicente Creek. (Yes=16; No=1; Abstain=2)

BB-DA-02: Recommend that DFG petition the SWRCB to declare Scott Creek and San Vicente Creek fully appropriated during summer and fall months. (Yes=17; No=1; Abstain=1)

BB-DA-07: Develop and enforce stream flow bypass requirements for diversions from the alluvial reaches of mainstem San Vicente and Mill creeks. (Yes = 15; No = 0; Abstain = 1)

##### **5.2.6.2.3 San Lorenzo River Hydrological Sub Area**

BB-SL-02: Recommend that the SWRCB work with DFG to develop and enforce stream flow bypass requirements for diversions from the alluvial reaches of the San Lorenzo River and its tributaries Zayante Creek, Fall Creek, Bear Creek, Boulder Creek, and Branciforte Creek. (Yes=16; No=1; Abstain=2)

#### **5.2.6.2.4 Aptos-Soquel Hydrological Sub Area**

There are no non consensus recommendations for Aptos-Soquel.

### **6.0 SUBMITTAL**

The CRT respectfully submits its report to the Acting Director for his consideration. The signatures below witness the accuracy of the transcription of the recommendations and votes on the recommendations contained within. Signatures of CRT members from government agencies explicitly do not reflect the position of the agency.

The NOAA Fisheries members add the following explanation of their signatures: “The signatories below have actively participated in the efforts of the coho recovery team in developing this report. The signatures do not, however, reflect a determination by NOAA Fisheries that this report is in compliance with the Endangered Species Act (ESA), nor do they constitute take authorization from NOAA Fisheries for any take associated with implementation of the measures in the report. Take authorization can only be obtained through the procedures associated with sections 4, 7, and 10 of the ESA and accompanying regulations. Specifically, take can be authorized through issuance of an incidental take statement at the culmination of a habitat conservation plan under section 10. Also, once a conservation program is recognized by NOAA Fisheries as meeting the requirements of a 4(d) rule for threatened species, take associated with that program would not be prohibited. The coho plan outlined in this report has not yet been subjected to any of these processes.”

The members of the CRT appreciate the opportunity to consult with the Department on the development of a comprehensive, range-wide recovery strategy for coho salmon. We believe that we have added value to a complex task. We have developed strong intra group working relationships which we believe are of continuing value to the Department and respectfully request that this team remain involved in a consultative role to the Department during implementation of the strategy, including during the Department’s adaptive management process and annual review of progress.

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Craig Bell and Richard Geinger,  
The Sierra Club

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Joe Blum and Charlotte Ambrose,  
National Oceanic and Atmospheric  
Administration, Protected Resources  
Division

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Walt Duffy, U.S. Geological Survey

—California Cooperative Fisheries Unit,  
Humboldt State University,  
science representative

Lawrence Dwight, California  
Cattlemen's Association

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Dan Gale, Senior Fisheries Biologist,  
Yurok Tribe

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Pam Giacomini, Director of Natural  
Resources and Commodities,  
California Farm Bureau

---

Steve Herrera, Chief, Environmental  
Review Unit, California State Water  
Resources Control Board

---

Wendy Millet, The Nature  
Conservancy

---

George Kautsky, Fisheries Biologist,  
Hoopa Tribe

---

Kallie Kull, Director, FishNet 4C  
(counties of Santa Cruz, Monterey,  
San Mateo, Marin, Sonoma and  
Mendocino-Russian River basin)

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Mark Lancaster, Five Counties Salmonid  
Conservation Plan Advisory Committee  
Counties of Del Norte, Siskiyou,  
Trinity, Humboldt, and Mendocino)

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Dean Lucke and Duane Shintaku,  
Assistant Deputy  
Director, Forest Practices, California  
Department of Forestry and Fire  
Protection

---

Deborah McKee, Senior Environmental  
Planner, California Department of  
Transportation

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Larry Moss, Smith River Alliance

---

Gail Newton, Project Director, California  
Department of Fish and Game, Native  
Anadromous Fish and Watershed Branch

---

Peter Parker and Dan Weldon, non-  
industrial timber Owners

---

Randy Poole, General Manager and  
Engineer, Sonoma County Water  
Agency

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Mark Rentz, Vice President, Chief  
Environmental and Legal Affairs,  
California Forestry Association

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Vivian Helliwell, and Jimmy Smith  
Pacific Coast Federation of  
Fishermen's Associations

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Stephanie Tom Coupe, Office of  
General Counsel, CDFG

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Tom Weseloh, California Trout

## **Appendix A**

### **FINAL GROUND RULES COHO RECOVERY TEAM AMENDED BY UNANIMOUS AGREEMENT 1/30/03**

#### **Goal and Objectives**

The Goal of the Coho Recovery Team (RT) is to advise the California Department of Fish and Game (Department) and, if possible, reach consensus on recommendations for a Recovery strategy employing reasonable conditions such that the species would no longer warrant listing.

The objectives are to share information on the nature and extent of concerns both about the Coho and other uses of proximate natural resources, to develop options for dealing with these concerns, to evaluate these options, and to come to agreement, if possible, on a set of recommendations for the recovery of Coho Salmon.

#### **Participation**

1. Active participation at meetings of the RT shall be limited to its Members, except insofar as a Member requests comment on a point or topic from another party and the RT agrees to the request. Presentation of agenda items by other than Members of the RT should be requested at the previous meeting of the RT.
2. Member may name an Alternate to participate in meetings which the Members is unable to attend and if an Alternate is named, accepts the responsibility of assuring continuity in participation on the Recovery Team.
3. Department staff who have prepared materials for use by the RT may be present at a meeting to answer questions of RT Members.
4. The duration of the RT's work is December, 2002 through July, 2003, unless the time is extended by request of the Director of the Department.

#### **Meetings**

1. Meetings will be managed by a neutral facilitator. The facilitator will preserve and maintain the schedule and ground rules and will guide meeting discussion to ensure Members who wish to be heard are allowed to be heard. The facilitator will neither agree nor disagree with any Member's position.

2. Draft agendas will be prepared by the facilitator consistent with the schedule of meeting topics provided by the Department and in consultation with Members as appropriate.
3. Members recognize the importance of attending meetings and agree to make every effort to attend each meeting. Members agree that discussion will be limited to agenda items, except insofar as time after the agenda has been covered allows for discussion on another topic.
4. Summary minutes of meetings will be kept and circulated for review by all Members of the RT. Minutes will reflect issues and concerns as well as project status.

### **Communication**

1. The Department agrees to provide a secure website to facilitate communication among the Members.
2. Each Member agrees that contacts with the media concerning the work of the RT while the RT is functioning shall be limited to the Deputy Director of the Department, Dirk Brazil.

### **Decisionmaking**

1. Members agree that it may be desirable to reach preliminary agreement on a topic or geographic unit. They further agree that such preliminary agreements are not binding and are subject to review and consideration after all topics and geographic units have been considered at which time preliminary agreements will be reviewed and affirmed or modified. Preliminary agreements will not be included in meeting minutes.
2. Members agree that if agreement is reached, it will take the form of a written statement of recommendations to the Director of the Department. The document will be drafted by project staff and circulated for review and approval of the RT.
3. Members agree that to the extent that the parties do not reach consensus on all points, the RT may transmit a report that indicates the issues on which agreement was reached and those on which agreement was not reached.
4. In the event full consensus is not achieved, Members may agree to make presentations orally or in writing to the Director that would clarify their views on the issues.

### **Safeguards for the Participants**

1. Each Member recognizes this is a collaborative problem-solving process and agrees to participate in good faith.
2. Each Member agrees to respect the right of each other Member to be heard.
3. Each Member agrees not to characterize a position taken by any other Member.
4. Each Member may withdraw at any time without prejudice. Any withdrawing Member remains bound by the ground rules.
5. Each Member agrees not to withhold relevant information from other Members.
6. Each Member agrees not to divulge information shared by others in confidence.
7. Each Member agrees that preliminary agreement on any aspect of the RT's work is subject to review and approval at the end of the process.

**Appendix B**  
**Appreciation of Individuals Who Assisted CRT Members**  
**In Development of the Coho Recovery Strategy**

Wes Anderson, Landowner, Eel River watershed  
Greg Andrews, Marin Municipal Water District  
Frank Banko, President, Bear River Regional Resources Conservancy  
Mike Belchik, Senior Fisheries Biologist, Yurok Tribal Fisheries Program  
Gordon Bennett, The Sierra Club

Chris Berry, Water Resources Manager, City of Santa Cruz  
Mike Bynce, Landowner, Klamath River watershed  
Bernie Bush, Forester, Simpson Resources Co.  
Peter Bradford, Landowner  
Gaylord Briggs, Forester, Roseburg Lumber Co.

Carre Brown, Mendocino County Farm Bureau  
Mike Byrne, Landowner  
Harry Carlson, UC Cooperative Extension  
Karen Christenson, Santa Cruz Resource Conservation District  
Kelly Conner, Forester and Resource Planner, Fruit Growers Supply Co.

Rob Darby, Fisheries Biologist, Pacific Lumber Co.  
Nan Deniston, Landowner  
Eric Ettlinger, Marin Municipal Water District  
Stu Farber, Wildlife Biologist, Timber Products Co.  
Leslie Ferguson, Regional Water Quality Control Board and Lagunitas TAC

Bruce Flock, Landowner  
Darren Fong (Golden Gate National Recreation Area)  
Keenan Foster, Senior Environmental Specialist  
Jeff Fowle, Landowner  
Ken Fox, Tomales Bay Association

Al Gerhart, Landowner  
Dennis Hall, Forester, CDF  
John Harper, UC Cooperative Extension  
Amy Harris, Senior Environmental Specialist, Sonoma County Water Agency  
Dr. Forrest Hill, Aquatic Ecologist, Entrix, Inc.

Dave Hillemeier, Fisheries Program Manager, Yurok Tribal Fisheries Program  
George Hollister, Landowner  
Steve Horner, Fisheries Biologist, Pacific Lumber Co.

Chris Howard, Wildlife Biologist, Simpson Resources Co.  
Eric Huff, Forester, Big Creek Lumber Co.

Mike Jani, Forester, Mendocino Redwood Co.  
Mitchell Katzell, Geomorphologist, Entrix, Inc.  
Mike Laing, Northern California Council Federation of Fly Fishers Conservation Committee  
Suzanne Lang, Program Specialist, CDF (GIS work)  
Steve Levesque, Fisheries Biologist & Hydrologist, Campbell Timberland Management, LLC

David J. Lewis, UC Cooperative Extension  
Liz Lewis, Marin County Department of Public Works  
Dan Macon, AgResource Solutions, CCA Watershed Resource Guide  
David Manning, Senior Environmental Specialist, Sonoma County Water Agency  
Lex McCorvey, Sonoma County Farm Bureau

Sterling McWhorter, Land Owner, Mattole River watershed  
Larry Maillard, Landowner  
Chuck March, Lake County Farm Bureau  
Leslie Markham, Forester, CDF  
Brian Michaels, Fisheries Biologist, Simpson Resources Co.

Alleah Middling, Forester, CDF  
Dina Moore, Landowner  
Tom Nelson, Forester, Sierra Pacific Industries  
Jim Ostrowski, Forester, Timber Products Co.  
Gary Paul, Forester, Gary Paul Consulting, Santa Cruz

Janet Pauli, Landowner  
Liza Prunski, Prunski and Chatham  
Pete Ribar, Forester, Campbell Timberland Management, LLC  
John Rice, President, Yager/VanDuzen Environmental Stewards  
Jay Russ, Landowner, Redwood Creek and Eel River watersheds

Lane Russ, Landowner, Humboldt/Del Norte Cattlemens President  
Kristen Schroeder, Santa Cruz County  
Steve Self, Wildlife Biologist, Sierra Pacific Industries  
Levada Silva, Del Norte County Farm Bureau  
Dr. Jerry Smith, San Jose State University

Nancy Solari, Marin Resource Conservation District  
Ruth Sundemeyer, Fisheries Biologist, Entrix, Inc.  
Chris Surfleet, Hydrologist, Mendocino Redwood Co.  
Darrell Sweet, President, California Cattlemen's Association  
Ken W. Tate, PhD, UC Cooperative Extension (hydraulics)

Tom Taylor, Senior Fisheries Consultant, Entrix, Inc.  
Jim Timmons, Landowner, Mad River watershed  
Woody Trihey, Senior Fisheries Engineer, Entrix, Inc.  
Nita Vail, Executive Director, California Rangeland Trust  
David Van Lennep, Forester, Redwood Empire, Inc.

Harry Vaughn, Landowner  
Adam Wagschal, Fisheries Biologist, Mendocino Redwood Co.  
Rueven Walder (SPAWN)  
Thersa Ward, UC Cooperative Extension (range land)  
Sean White, Principal Environmental Specialist, Sonoma County Water Agency

David Wright, Fisheries Biologist, Campbell Timberland Management, LLC  
Katherine Zeimer, Humboldt County Farm Bureau

## **Appendix C**

### **PARTIAL LIST OF VOLUNTARY AND COOPERATING GROUPS, ACTIVITIES AND RESOURCES AVAILABLE TO ASSIST IN THE RECOVERY OF COHO SALMON BY WATERSHED (HU LEVEL)**

#### **Multiple Watersheds**

Since 2001 The California Water Resources Agency has funded regional coordinators to provide technical assistance to local watershed groups. This program is managed by For the Sake of the Salmon.

Members of the restoration community and public agency staff worked together on a Task Force to Remove Barriers to Restoration. Under the auspices of the Secretary for Resources, the group met four times and recommended specific actions.

Five Counties Salmonid Conservation Program is the first multiple country, watershed based conservation strategy formed in California to address the biological, watershed, political, social and economic effects of declining salmonid populations. Members are Del Norte, Humboldt, Mendocino, Siskiyou and Trinity counties.

California Cattlemen's Association has sponsored workshops with the assistance of U.C. cooperative Extension and Natural Resources Conservation Service on water quality since 1996. The recently developed Watershed Resource Guide encourages and assists the formation of watershed groups.

The Fish, Farm and Forest Communities Forum (FFFC) facilitates the recovery of salmon and steelhead, implements recovery measures voluntarily in cooperation with state and federal agencies based on best available scientific evidence and works towards achieving cost effective projects that promote ecological and social stability. FFFC has produced "Watershed Processes and Erosion Control: A Workbook and Compendium."

U.C. Davis provides a Watershed Advisor to collaborate with landowners, watershed planning groups and resource agencies to develop and implement scientifically sound watershed management plans and policies.

The Rangeland Water Quality short course taught by U.C. Davis has been attended by ranchers representing over 1 million acres and has resulted in ranch plans prepared by half of the ranchers who attended. Implementation of improved practices have been undertaken by over half the ranchers who attended.

The American Tree Farm System developed the Stream Steward Restoration Guide to provide a "crash course" in stream restoration. Since 1997 the organization and Trout

Unlimited have worked with tree farmers and fisheries and forestry experts on Shared Streams projects to help restore and protect targeted watersheds.

The “California Watershed Assessment Manual,” produced by U.C. Davis provides a tool box of approaches and protocols to analyze natural resource issues in creeks and rivers.

The Watershed Alliance Council performs biodiversity conservation planning and monitoring with citizen participation and access to GIS on the North Coast. The Council has education programs to achieve protection and improvement of water quality and endangered salmonid habitat. The Council publishes “Econews” and “Econews Report.”

The Humboldt Fish Action Council monitors local salmon populations, providing data for management and conservation of salmonids in Freshwater Creek. The Council also propagates Chinook salmon.

The California Dairy Quality Assurance Program is a voluntary, industry driven program offering continuing education and certification, including in Environmental Stewardship Farm Management.

The Fish Friendly Farming Program developed by the Sotoyome Resource Conservation District is a voluntary certification program for grape growers who implement land management practices that restore and sustain fish habitat on their property.

The California Association of Resource Conservation Districts sponsors “Wild on Watersheds”, a voluntary educational program to encourage hands-on participation in watershed management. The Association has an Agriculture Conservation Committee Plan that provides information, reviews programs, and provides input which affect farmland loss. It provides assistance and education to farmers and ranchers to address invasive and endangered species regulations. Each county within the range of coho salmon has an active RCD.

Fishnet 4C—The Fishery Network of the Central California Coastal Counties of Mendocino (Russian River Basin), Sonoma, Marin, San Mateo, Santa Cruz and Monterey)—is a proactive multi-county group focused on county based programs to protect and restore coho salmon, Chinook salmon and steelhead trout, in the Central California Coastal ESU. Programs include restoration projects (e.g., roads, barrier removals, bioengineering) and policies (e.g., grading ordinances, streamside conservation setbacks, general plan updates) to protect coho salmon.

The AmeriCorps Watershed Stewards Project (WSP) has formed a collaborative with timber companies, commercial and sport fishing industry representatives, teachers, community members, non-profit organizations, and public agencies to conserve, restore, and sustain natural anadromous habitats for future generations.

The Central Coast Vineyard Team will identify and promote the most environmentally safe, viticulturally and economically sustainable farming methods, while maintaining or

improving quality and flavor of wine grapes. The team will present a model for wine grape growers and will promote the public trust of stewardship for natural resources. They maintain demonstration sites and provide assistance on seed selection, planting methods, and costs for establishing cover and preventing erosion in order to comply with Clean Water Act regulations.

The California Association of Winegrape Growers operates a Sustainable Viticulture Program. It provides tools to explore the interconnections between individual farms, the local ecosystem, and larger communities and ecosystems.

### **Bodega/Marin HU**

The Tomales Bay Watershed Council has prepared the Preliminary Tomales Bay Watershed Stewardship Plan. The Council works with multi-stakeholders to complete a comprehensive watershed assessment plan and implement priority restoration projects and outreach and education programs. This includes Lagunitas Creek, with a strong focus on coho restoration in that drainage.

Since 1993, the STRAW project has partnered students with ranchers to restore creek habitat.

SPAWN is a local grassroots organization with a focus on salmonid protection and watershed restoration. Outreach and education programs include salmon spawning guided walks and juvenile rescue efforts. Other efforts include creek restoration projects, roads and culvert/barrier identification, and water quality monitoring.

Wilderness Way is an educational program in the San Geronimo Valley with a strong focus on salmon restoration and protection.

Marin Municipal Water District (MMWD) Lagunitas TAC was formed as part of the mitigation required for water projects in the Lagunitas basin. The Lagunitas TAC advises MMWD on projects to improve coho salmon habitat, with a focus on increasing woody debris in the creek, identifying and fixing sediment problems from erosion, and monitoring salmon populations and habitat conditions.

Environmental Action Committee works with the Tomales Bay Watershed Council on issues related to planning and restoration as well as advocacy.

The Marin Conservation League is focused on public education, outreach, and advocacy.

Trout Unlimited is active in salmon restoration and advocacy work in the Lagunitas drainage (in particular in Devil's Gulch) and at the Pt. Reyes National Seashore, in coordination with the seashore's salmon recovery efforts.

U.S. Park Service, Pt. Reyes National Seashore, focuses on salmon restoration projects (erosion control riparian protections, and removal of barriers) in Olema, Pine Gulch and Lagunitas Creeks.

U.S. Park Service, Golden Gate National Seashore, works on creek restoration projects and assessments that will directly benefit coho salmon.

U.C. Cooperative Extension works with ranchers in west Marin to improve salmon habitat through erosion control and riparian fencing projects.

The Marin Resource Conservation District (RCD) works with local residents in west Marin (primarily ranchers and dairy farmers) to improve watershed conditions that directly help to restore salmon habitat. Projects include erosion control, riparian fencing and watershed assessments and monitoring.

STRAW provides watershed education and outreach programs as well as riparian restoration projects. In 2001, this program won the Governor's Award for Environmental and Economic Leadership.

MALT (Marin Agricultural Land Trust) is nationally known for its ability to help protect ranchland in west Marin, which helps prevent conversion to other land uses such as development and sub-divisions, thereby protecting land important to coho salmon.

### **Cape Mendocino HU**

Mattole River HSA: Mattole Salmon Group: this citizen-run group was formed in 1980, has conducted spawning surveys since that time and has documented down-migration through migrant trapping. They raised coho salmon via hatch boxes placed in streams. This group is part of the DFG Cooperative Trapping and Rearing Program. Produced with DFG a five-year plan that provides guidance to the cooperative rearing and rescue projects.

The Mattole Restoration Council has performed habitat assessments from 1988 through 1994 and published "Good Roads, Clear Creeks."

Ten Mile River HSA: Trout Unlimited is working with forestland owner Hawthorn Campbell on Ten Mile river to address controllable sediment sources.

### **Eel River HU**

The Eel River Watershed Improvement Group (ERWIG) was formed in 1997 to develop cooperative relationships and implement fishery improvement projects with landowners in the Eel River system. It is focused on the lower Eel, Van Duzen River, South Fork Eel and associated tributaries.

The Mainstem Eel River Group (MERG) works to educate and assist community members on salmonid restoration issues through the development and implementation of restoration projects. MERG works on the central mainstem from Dobbys to Kekawakee creeks.

The Humboldt Resource Conservation District directs assistance to landowners and landowner based watershed groups leading to resource conservation and fish habitat improvements. Projects include the Lower Eel Basin Watershed Organizational Support Project to provide direct assistance to landowner based groups in the Middle and Lower mainstem Eel River and delta, the Van Duzen River, and South Fork Eel River Watersheds. Projects implemented include management of dairy waste, stream bank erosion and riparian restoration.

South Fork HSA: The Eel River Salmon Restoration Project has worked over 20 years on restoration projects, education of students and adults and has operated a fish hatchery. They operate mainly on the South Fork Eel River.

Mendocino Redwood Company is removing fish passage barriers on their Hollow Creek property.

The AmeriCorps Watershed Stewards Project (WSP) has formed a collaborative with timber companies, commercial and sport fishing industry representatives, teachers, community members, non-profit organizations, and public agencies to conserve, restore, and sustain natural anadromous habitats for future generations.

The Humboldt and Mendocino Counties RCDs are cooperating in assisting local South Fork Eel landowners to develop restoration plans.

Ferndale HSA: The Salt River Public Involvement Project provides landowners a forum to coordinate restoration efforts in the Salt River basin.

Howe Creek Ranch has given a conservation easement to protect from subdivision and conserve riparian habitat.

Yager Creek HSA: Projects by Pacific Lumber Company include pool development, cover, and bank stabilization.

Yager/Van Duzen Environmental Stewards (YES) is a group of landowners and resource managers working in Yager Creek, North Fork Yager Creek, Middle Fork Yager Creek, South Fork Yager Creek and the middle section of the Van Duzen River and associated tributaries. An inventory of 420 miles of roads will be completed in the spring of 2003 on YES member lands. All members must have a Water Quality Management Plan that has Best Management Practices designed to protect water quality.

The Fortuna Creeks project is a comprehensive watershed monitoring and restoration project for high school students, who conduct water quality testing, aquatic

macroinvertebrate sampling and habitat typing for the lower Eel and Van Duzen Rivers. They also do bi-yearly creek clean-ups, increase public awareness about creek care and plant trees to bring back natural creek habitat and participate in spawner surveys to help monitor the local salmon population.

Hydesville HSA: Humboldt County Resource Conservation District, the Natural Resource Conservation District and ERWIG have been working with landowners with Van Duzen River frontage to treat stream bank erosion problems using bioengineering techniques and place large wood and boulders to provide fish habitat.

Gravel operators at the mouth of the Van Duzen River cooperated in an experimental trenching project to provide a defined low flow channel for fall salmon to use in migration in 2002.

Landowners on Wolverton Gulch and Cummings Creek have participated in restoration projects on their properties.

Weott HSA: Landowners have cooperated in upslope and riparian inventories on approximately 70% of this watershed. Many roads have been storm proofed, stream banks stabilized and trees planted in the riparian areas throughout the watershed.

Benbow HSA: Eel River Salmon Restoration has operated a small hatchery on Redwood Creek, conducts numerous restoration activities including watershed planning documentation, in-stream structure design and construction, slide stabilization, sediment basin construction and maintenance, tree planting, fish barrier modifications, sediment source surveys, and road system drainage upgrades, monitored fish populations using downstream migrant traps and spawner surveys, and been involved with education programs that involve local schools and interested landowners. This group has recently completed a watershed plan for Miller and is working on another for Leggett Creek. Eel River Salmon Restoration has built in-stream structures in Leggett Creek, using logs donated by a local timber landowner.

Seely Creek landowners have worked to implement a watershed plan funded by DFG. Roads have been storm proofed, thousands of trees planted, and a culvert that was a barrier to salmonids replaced.

Trout Unlimited and Mendocino Redwood Company have performed a road erosion survey in the Hollow Tree Creek Watershed. MRC is providing a cost share.

Laytonville HSA: Hawthorne Timber Company is engaged in a long-term effort to storm-proof and upgrade upslope roads, as well as abandoning down slope roads. Diversions and historic crossings are systematically being repaired, and rocked fords are being installed at many stream crossings.

Outlet Creek HSA: Landowners have worked over the past fifteen years to maintain a defined channel through Little Lake Valley to facilitate upstream migration of adult and downstream migration of juvenile salmonids.

The Willits Voluntary Watershed Group is participating in an assessment of Davis Creek.

### **Eureka Plain HU**

Humboldt Bay Watershed Advisory Committee (HBWAC) has worked since 1997 to plan and guide cooperative salmon conservation efforts between local stakeholders while also considering regional ecological and socio-economic needs. They have recently prepared a conservation plan for salmon and steelhead trout.

Salmon Forever has monitored turbidity and discharges in Freshwater Creek.

Humboldt County has provisions to protect Stream Management Areas and evaluate their effectiveness.

The Humboldt Bay Watershed Enhancement Program is a cooperative effort coordinated by the Redwood Community Action Agency to improve water quality and anadromous fisheries habitat within the Humboldt Bay watershed. Members include landowners, timber companies, watershed restoration groups, contractors, a land trust, educators and government agencies.

The Watershed Alliance Council's Watershed Improvement Network is a collaborative alliance of watershed restorationists, planners, and managers through Humboldt County. The long-term goal of the project is to improve the health and productivity of Humboldt County's natural resources and economy.

### **Klamath River HU**

The Yurok Tribal Fisheries Program has developed a comprehensive watershed restoration plan for the lower Klamath River and is currently implementing prioritized activities throughout the sub-basin in cooperation with Simpson Resource Company and the Del Norte Center of the California Conservation Corps.

Farmers and ranchers in the Klamath Project worked with The Nature Conservancy and federal agencies to shift nearly 25,000 acres of farmland in the upper Klamath basin to wetlands and other environmental projects. An Integrated Pest Management Plan was developed for lease land growers that reduces by 90% the pest and weed control measures available in California.

Klamath Water Users Association has been working on a dry-year environmental water bank to be implemented in 2003. During 2002, these water users reduced irrigation during the last six weeks of the irrigation season to save water for the river and wetlands which enabled the Bureau of Reclamation to release a "pulse flow" out of Iron Gate Dam

to aid fish passage in the lower portion of the river. The 2002 federal Farm Bill provides funds for water-conserving purposes. The first round of funding included 175 growers in California, the majority of whom propose on-farm irrigation efficiency through piping, upgrading sprinkler systems, and laser-leveling land.

During drought years 1992 and 1994 Tulelake Irrigation District voluntarily shut off diversions throughout the district seven weeks early to provide more water for salmon, suckers, and the wildlife refuges. In 2002, the District lined 2 ½ miles of open canal to reduce water loss.

The Klamath Irrigation District is studying lining water canals with bentonite to reduce water loss.

The Klamath Resource Information System (KRIS) is a comprehensive database management system with GIS capability that is available to assist in the assessment of watersheds.

### **Mad River HU**

The Coastal Stream Restoration Group has worked in the North Fork of the Mad River to improve LWD structure and grow conifers for future recruitment.

Blue Lake and Butler Valley HSA: Redwood Coast Action Agency (RCAA) has completed several projects with in stream LWD placement, rock structure placement, riparian planting with conifers and channel re-alignment in Maple Creek and Canon Creeks.

The Lindsay Creek Working Group works to protect and restore watershed processes in this sub watershed.

Butler Valley HA: The Redwood Coast Action Agency has completed projects to place LWD, rock structure riparian planting with conifers and channel re-alignment in Canon and Maple Creeks.

### **Mendocino Coast HU**

Digger Creek Restoration worked with the non-profit Mendocino Coast Botanical Gardens to replace a poorly functioning culvert with a bridge and plan to do additional work with a culvert replacement under Ocean Drive on the same stream.

Trout Unlimited is working with Mendocino Redwood Company in the assessment and implementation phase of comprehensively addressing controllable sediment sources in Coho sub basins on the Garcia, Navarro, Albion, Big, Noyo, and South Fork Eel tributary Hollowtree Creek. Sites are mapped and given a low, medium, or high priority. Field survey teams develop site-specific road treatment prescriptions that include a cost benefit ratio for sediment savings. This program also includes classroom and field training of

landowners, road crews, equipment operators and contract loggers. Landowner funds match funds from DFG, National Fish and Wildlife Foundation, Mendocino County Resource Conservation District and Americorp's Watershed Stewards Project.

Mendocino Redwood Company collects and shares data on stream temperature. In a cooperative project with Trout Unlimited, Mendocino Redwood Company will replace a major migration barrier with a bridge that will open up the North Fork Schooner Gulch to coho spawning and rearing.

Albion River HSA: In the Albion River watershed, Hawthorn Campbell completed 2 miles of improved road surfacing, 3 miles of reshaping, abandoned 2 crossing and repaired 1 diversion.

Navarro River HSA: The Mendocino County Water Agency prepared a watershed plan for the Navarro River with the participation of the Anderson Valley Land Trust and the Navarro Watershed Community Advisory Group. Mendocino Redwood Company, DFG, and TU are storm proofing the Little North Fork.

Mendocino Redwood Company is developing a road management plan for Masonite Road to reduce sediment to the North Fork of the Navarro and Daugherty Creek (a tributary to the Big River).

The Mendocino RCD completed the initial Navarro Implementation Plan and is beginning the Robinson Creek and Lower Indian Creek Restoration projects, the Arundo Eradication project, and is completing the Mill Creek Monitoring project and sediment reduction projects on Holmes Ranch Road, Hungry Hollow, and Bates Road. This RCD is also establishing the Mendocino Natives Nursery to establish a self-sustaining local business that provides native plants for riparian improvement.

Ten Mile HSA: Forest landowners completed 12.6 miles of improved road surfacing, 21 miles of road re-shaping, and 21 miles of road abandonment, including 11 crossings and 4 landings, and repaired 2 diversions in the Ten Mile watershed between 1998-2002. For 2003 they will conduct an additional 300 miles of road assessment, 3 miles of upgrades, install 8 large crossings, repair 96 diversions and abandon 14 miles of roads with 42 crossings and 15 landings.

The Ten Mile Forest Landowners Association assists smaller timber landowners to protect, manage, improve, and protect surface and groundwater quality and enhance aquatic habitat for native aquatic species.

Noyo River HSA: The Noyo Watershed Alliance is a stakeholder group that will address water quality issues in the Noyo and coordinate restoration activities.

Hawthorn Campbell improved 2.6 miles of road surfacing, 6.3 miles of road reshaping and abandoned 2.8 miles of roads between 1998 and 2002 in the Noyo River watershed.

In 2003, the company plans to complete an additional 6.2 miles of upgrades in the Little North Fork of the Noyo.

Big River HSA: In the Big River watershed, Hawthorn Campbell completed 8.7 miles of improved road surfacing, 6.8 miles of reshaping, installed 6 large crossings, repaired 2 diversions and abandoned 2.2 miles of road including 13 crossings between 1998 and 2002.

Garcia River HSA: The Mendocino County Resource Conservation District had a sediment delivery reduction project in the Bluewaterhole Creek area.

The Mendocino County Resource Conservation District has prepared a Garcia River watershed enhancement plan. Trout Unlimited and Mendocino Redwood Company are placing LWD in the Garcia.

Landowners in the Garcia Watershed Council have participated in voluntary stream temperature monitoring and will soon publish a report.

Gualala HSA: Landowners from Mendocino and Sonoma Counties are members of the Gualala Watershed Council, which is supported by the Sonoma/Sotoyome RCD staff.

### **Redwood Creek HU**

Redwood Creek Landowners Association has inventoried their properties with follow up upgrading and decommissioning of roads throughout the watershed to reduce future sediment impacts.

Simpson Resource Company (SRCO) implemented a large woody debris placement project in the upper watershed near Minon Creek during 2002. SRCO replaced culverts in the Little River HSA.

### **Russian River HU**

Fishnet 4C Program report, "Effects of County Land Use Policies and Management Practices on Anadromous Salmonids and Their Habitats (Harris et. al., 2001)

The Mendocino County RCD is completing the Feliz Creek Riparian Restoration and Fish Habitat Improvement project, the McNab Ranch Road Assessment and is beginning the Forseyth Creek Assessment project.

Guerneville HSA: There are community watershed groups in the Fife Creek, Jenner Creek, and Willow Creek watersheds.

Fish Net 4C has published "Guidelines for Protecting Aquatic Habitat and Salmon Fisheries for County Operations and Maintenance" (Draft, Dec. 2002)

The Russian River Watershed Council is a multi-stakeholder watershed group working to restore the Russian River watershed through public outreach and education, watershed assessments and planning, restoration projects and public policy advocacy.

Circuit Riders, Inc. is a non-profit organization that works with Sonoma County youth, with a focus on exotic plant species eradication and riparian restoration projects in the Russian River basin.

Sotoyome Resource Conservation District is active in watershed restoration throughout the Russian River basin and other Sonoma County watersheds (i.e., Gualala River). The District employs watershed coordinators to conduct outreach and education programs and conduct outreach and education for better watershed stewardship.

The Sonoma Ecology Center is a non-profit organization that works on coho salmon projects in partnership with private landowners and Sonoma County. The Center also serves as an advocacy voice for improved policies related to watershed protection and restoration.

The Occidental Arts and Ecology Center provides a forum for watershed education through their annual Basins of Relations Program. Members of OAEC are also active in west Sonoma County watershed groups for smaller tributaries with a focus on coho salmon restoration and protection.

West Sonoma County Watershed Groups include friends groups and active citizen groups working in partnership with local government and landowners to restore and protect many smaller tributaries in West Sonoma County.

Bodega Marine Laboratory is a field lab of UC Davis that has contributed to the understanding of genetics for coho salmon in the Central California Coastal ESU.

U.C. Extension Service is active with landowners in the Russian River basin, with a focus on erosion control and best management practices for agriculture.

The Institute for Sustainable Fisheries (ISF) works in the Russian River Basin to facilitate the establishment of a genetically informed conservation hatchery for coho salmon at Warm Springs Dam.

### **Salmon River HU**

The Salmon River Restoration Council has been studying data gaps for the past 1-2 years.

Water users in the basin have prepared a 40-page summary of conservation and restoration efforts in the basin.

## **San Francisco Bay HU**

Mill Valley Streamkeepers provides outreach and education to local residents to conduct assessments and monitor the conditions in Arroyo de Corte Madera Creek and implement restoration projects.

Friends of Corte Madera Creek provides outreach and education to local residents to conduct assessments and monitor the conditions in Corte Madera Creek and implement restoration projects.

## **San Mateo Coast**

The Coastal Watershed Council is active in the Gazos Creek drainage on watershed assessments and identifying priority restoration projects.

The San Mateo Resource Conservation District (RCD) is active in implementing programs and projects associated with salmon restoration on the San Mateo Coast, including watershed assessments, erosion control, manure management and barrier removal projects.

The California Farm Bureau is active with landowners on the San Mateo coast to improve farming practices to protect streams and water quality. This includes working to implement the Monterey Bay National Marine Sanctuary Clean Water Program's Agricultural Land Management Plan. The Farm Bureau is also active with the RCD and the County in helping to restore in-stream flows for salmon by relocating on-channel storage ponds to off-channel.

The Monterey Bay National Marine Sanctuary Clean Water Program has an Agricultural Land Management Plan. The Sanctuary is also active with the RCD and the County in helping to restore in-stream flows for salmon by relocating on-channel storage ponds to off-channel. The Sanctuary has comprehensive programs for protecting water quality in Monterey Bay through erosion control on agricultural lands.

The Pescadero Conservation Alliance is a local grassroots organization working with residents and agriculture on environmental issues in Pescadero Creek, including creek clean-ups and exotic weed control.

The Peninsula Open Space District (POST) is working on the San Mateo coast to preserve important lands with ecological value, including lands in coho watersheds.

The Committee for Green Foothills works on environmental review of planning documents related to development on the San Mateo coast. On-going monitoring of development projects focus on protecting endangered species, coastal access, coastal streams and water quality.

## **Santa Cruz-Big Basin HU**

The Coastal Watershed Council actively prepares watershed assessments, water quality monitoring, advocacy, and outreach and education.

The Santa Cruz Resource Conservation District (RCD) works with local landowners and residents on watershed assessment and restoration projects. The RCD also partners with local agencies to implement projects on public lands, and provides outreach and education. The District is the founder of the Blue Circle model for community involvement in watershed groups.

The California State Coastal Conservancy is active in the Santa Cruz region in watershed restoration in many salmonid streams. They support watershed assessments, implementation of restoration projects, and join in partnership with the RCD, DFG, local municipalities and local citizen groups to achieve restoration and protection goals.

The Monterey Bay Salmon and Trout Project works to provide a conservation based hatchery for restoration of coho salmon and steelhead trout on the San Mateo and Santa Cruz coast.

## **Shasta River HU**

The Western Shasta Resource Conservation District created a special educational series on “Water Quality and You” for the Cow Creek Watershed residents and landowners.

## **Smith River HU**

The Smith River Advisory Council is a citizen-based effort in existence for many years that has developed the Smith River Action Plan and holds a yearly colloquium to educate the community about the Smith and its fisheries.

## **Trinidad Plain HU**

Little River HSA: Simpson Company has conducted out migrant trapping and developed population estimates on the mainstem of Little River. The company also has a program of road retirement in this HU.

## **Trinity River HU**

Grouse Creek HSA: Sierra Pacific Industries has upgraded 40 sites identified by a US Forest Service inventory of the Grouse Creek Watershed and over 6.5 miles of road to minimize the potential for future sediment input into Grouse Creek or its tributaries. Six sites remain to be rehabilitated.

South Fork HSA: Timber Products Company has completed 2 years of a five-year road maintenance plan addressing road and crossing rehabilitation work on over 18 miles of road within the Upper South Fork Trinity River unit. As of March 2003, TPC is ahead of schedule and has completed almost 12 miles of rehabilitation work.

Water conservation projects are underway in the Indian Creek, Hayfork watershed with cooperation of landowners.

## Appendix D

### Watershed Prioritization Maps And Explanations

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#### Watershed Prioritization Methodology

**Purpose:** This document describes the data, processes, and methods used by the Department to apply the framework set by the Coho Recovery Team. It also discusses the limitations of the data and methods, and thus, the limitations of the results. While the data sets available for this analysis were limited, it was determined by the CRT that a somewhat limited process would provide a better tool for prioritization than a wholly subjective process. Such tools, which combine data with expert opinion, are becoming more commonly used in making management decisions, where data alone are insufficient.

#### -Map 1: Consistent Presence (“Refugia Watersheds” – W. Duffy)

- What:** Shows the percentage of streams surveyed, in each HSA (Hydrologic Sub-Area), that have consistent presence of coho salmon over 2 or 3 years.
- Data:** Coho Presence/Absence tables found in the Coho Recovery Team Watershed Summaries (provided by the regions)
- Analysis:** Since quite a few of the watersheds had only 2 years of P/A data (2001 and 2002), we had to base our analysis on only those 2 years that we could find consistently across all CALWATER hydrologic sub-area (HSA) watersheds. A handful of watersheds had additional years, and in those cases we also included 2000 data.

First, using the P/A data, we defined ‘Consistent Presence’ to mean surveyed and found in more than one of the 2 or 3 years of survey results, or surveyed and found in the only year surveyed. Then, by counting the number of streams surveyed per watershed (HSA), we came up with a percentage of consistent presence (Consistent Presence in 2 of 8 streams surveyed in that watershed = 25% Consistent Presence).

We then grouped the results into 6 rankings:

- 0 = No surveys in this watershed.
- 1 = Streams surveyed, but no coho found.
- 2 = Coho found, but no consistent presence.
- 3 = 0-9% Consistent Presence
- 4 = 10-49% Consistent Presence
- 5 = 50-100% Consistent Presence

Shown below are the criteria we used to determine if a stream had ‘Consistent Presence’:

***For streams with 2 years of survey***

Consistent Presence?	Year	Year
N		
N	A	
N	A	A
N, but coho found	P	A
Y	P	
Y	P	P

***For streams with 3 years of survey***

Consistent Presence?	Year	Year	Year
N			
N	A	(A)	(A)
N, but coho found	P	A	
N, but coho found	P	A	A
Y	P	P	A
Y	P		
Y	P	P	
Y	P	P	P

**Limitations:** This map was produced using presence/absence data, not abundance data. So it doesn’t in any way represent the total numbers of fish in any given HSA, just that they were there. A standardized sampling protocol has been applied since the 2000 field season. In order to have comparative results, only data that adhere to these protocols (only 2-3 years of the available data) were used for this analysis. Finally, this map only shows where streams have been surveyed and coho were found (or not). There are many streams that were not surveyed at all. This creates a bias based on how many streams were surveyed in a given HSA. Some HSAs had only 1 or 2 streams surveyed and could receive a 50% or 100% Consistent Presence with only 1 or 2 streams having coho presence, while other HSAs had 20+ streams surveyed and could have many more streams with coho presence and still not reach the 50% Consistent Presence mark. The streams that were chosen to be surveyed, however, were based on historic data that showed where the coho were most likely to be found.

**-Map 2: Coho Population and Risk (“Risk of Extinction” – W. Duffy)**

- What:** Shows the combination of Coho Population factors and Risk factors by HSA.
- Data:** This map represents the compilation of several data sources. See below for details on the 6 combined analyses used.
- Analysis:** The rankings for the 3 coho population factors were first added together, and then the 3 risk factor rankings were added together and divided by 3. This added the risk factors in as equivalent to each individual population factor.

Finally, both totals were added and then grouped into quintiles separately for each ESU.

**Limitations:** This map was produced by combining the rankings of 6 separate analysis (3 for coho population factors, and 3 for risk factors). See below for specific limitations on each of these.

**Compiled Analysis:** The following 6 items represent individual analyses that all went into the Coho Population and Risk Map. All of these analyses involved assigning a score to each HSA and then grouping the scores into ranks (usually 1-5). Since there are many factors that differ between the 2 ESUs (ecologically significant unit), these range breaks were often created separately for each ESU (3, 4, and 6).

**1. Consistent Presence** – see previous map

### **2. Isolation Index**

**Data:** CALWATER2.2 watersheds and ‘Consistent Presence’ data created from Presence/Absence data from Coho Recovery Team Watershed Summaries.

**Analysis:** For this analysis we wanted to assess the geographic isolation of every watershed (HSA) that had any level of ‘consistent presence’ (codes 3, 4, or 5). To accomplish this, we did the following for each watershed that fell into this category:

1. Selected all watersheds within the same Hydrologic Unit (HU) that were at least partially within a 5 mile radius of the boundary of the selected watershed.
2. Sum the area of all of these selected border watersheds.
3. Do a subset sum of the area of all of the selected border watersheds that also had some level of ‘consistent presence’.
4. Calculate the percentage of ‘consistent presence’ area out of the total area. The lower the percentage of nearby ‘consistent presence’ watersheds, the more isolated the ranking. The rankings were as follows:
  - 1 = 100-70% (not very isolated)
  - 3 = 70-45% (somewhat isolated)
  - 5 = 45-0% (very isolated)

**Limitations:** This analysis is based on the proximity of HSA watersheds to other HSA watersheds within the larger HU watershed unit.

### **3. Run Length**

**Data:** 100K DFG Streams layer from Eric Haney (Region 1)

**Analysis:** For this analysis we first took the downstream stream length from the output point of each watershed (HSA) to the mouth (ocean or SF Bay).

We then added a ‘pseudo radius’ value calculated for each watershed based on its area. This addition created a run length that pushed partially into the watershed, and it also gave us run lengths for coastal watersheds that otherwise would have received a zero value. We then grouped the results into rankings based on 5 categories (different ranges for the 2 ESUs):

<b>Ranking</b>	<b>SONCC</b>	<b>CCC</b>
5	0-13 miles	0-4 miles
3	14-40	5-6
1	41-82	7-8
3	83-126	9-11
5	127-200	12-31

High rankings were given to both very short and very long runs, with the assumption that these represented potential unique life strategies of populations of coho.

**Limitations:** We are calculating an average value that goes mid-way into the HSA where there are coho.

#### ***4. Census Population Density***

**Data:** Year 2000 Census data from DFG library (by Census Tract)

**Analysis:** For this analysis we used the existing Density Class field (1-10) in the data, and aggregated up from Census Tract to HSA. For each Census Tract (or part of a Census Tract as clipped by the HSA boundary), we multiplied the Density Class by the percentage area of the Tract to the HSA, and then added all the pieces. The results were then grouped into 5 rankings for each ESU.

**Limitations:** We are inferring a risk to the coho population based on the density of people; however, this inference is strongly supported in the literature. While the Census data is fairly accurate, the relationship of human density to coho risk is not necessarily a direct linear one.

#### ***5. Points of Water Diversion***

**Data:** State Water Resources Control Board's Water Rights Information System (data from 12/2002).

**Analysis:** Within the historical range of coho, the points of diversion were summarized by HSA. The totals were then grouped into ranks based on percentiles:

<b>Percentile</b>	<b>Range</b>	<b>Rank</b>
50%	0-19	1
60%	20-41	2
70%	42-64	3

Percentile	Range	Rank
80%	65-186	4
95%	187-1045	5

**Limitations:** The data used for this analysis were the best available. The data set does not capture all water diversions, nor the quantity, duration, or timing of the diversion. Some diversions may be for a single residence, while another may be for a very large water district transfer or large irrigation project.

## 6. Road Density

**Data:** 100K Roads data from DFG library (USGS DLG data by county)

**Analysis:** For this analysis we counted miles of roads per watershed (HSA), and divided by total square miles per watershed to get a miles/sq.mile figure. The results were then grouped into 5 rankings for each ESU.

**Limitations:** The 100K Roads data used for this analysis is the best available for the whole coho range at this time. However, at the 100K scale of data capture, large numbers of smaller rural roads are left out, thus somewhat diminishing the road density in the rural areas.

## -Map 3: Prioritized Watersheds for Management Actions ("Restoration Potential" – W. Duffy)

**What:** Shows the combination of Coho Population factors, Risk factors and Watershed Status by HSA.

**Data:** This map represents the compilation of several data sources. It starts with Map 2: Coho Population and Risk (see above) and adds a combined Watershed Status analysis that was compiled based on the professional opinion of DFG field staff on 3 categories for each HAS: Potential Habitat, Disconnected habitat, and Watershed Condition.

**Analysis:** DFG field staff from Region 1 and Region 3 were asked to rank each HSA (1-5) in their region based on the following 3 categories: 1) Potential Habitat, stream gradient and pools, 2) Disconnected Habitat, barriers, and 3) Watershed Condition, overall condition, impairments, disturbances. These ranks were then added together and added to the totals from Map 2: Coho Population and Risk. The totals were then grouped into ranks (1-5) separately for each ESU.

**Limitations:** The limitations for this map include the limitations from Map 2: Coho Population and Risk. In addition, the 3 ranks collected from DFG field staff are subjective.

## -Map 4: Disconnected Habitat ("Disconnected Habitats" – W. Duffy)

**What:** Shows the amount and type of stream barriers to coho migration.

- Data:** This data was compiled based on the professional opinion of DFG field staff.
- Analysis:** DFG field staff from Region 1 and Region 3 were asked to rank each HSA (1-5) in their region based on Disconnected Habitat. The possible categories are as follows:
- N/A = not current or known historic coho habitat
  - 0 = natural, permanent, or year-round barrier to coho migration
  - 1 = an extremely large barrier (i.e. major dam like Iron Gate) or an extremely large number of confirmed barriers
  - 2 = large numbers of confirmed barriers
  - 3 = a moderate number of barriers need to be removed or modified to allow all life stages passage to restorable coho habitat
  - 4 = a few barriers need to be removed or modified to allow all life stages passage to existing coho habitat
  - 5 = none to very few barriers need to be removed or modified to allow all life stages passage to existing coho habitat
- Limitations:** The data for this map were collected from the existing barriers database, as modified by professional opinion from DFG field staff and is, therefore, a subjective ranking.